Final Environmental Impact Statement for the Sigurd to Red Butte No. 2 345kV Transmission Project

DOI-BLM-UT-C010-2009-0048-EIS

Case File: UTU 83067











U.S. Department of the Interior Bureau of Land Management

Final Environmental Impact Statement for the Sigurd to Red Butte No. 2 – 345kV Transmission Project

DOI-BLM-UT-C010-2009-0048-EIS Case File: UTU 83067

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Volume II of III

Color Country District Cedar City Field Office 176 East D.L. Sargent Drive Cedar City, Utah 84721

Cooperating Agencies

U.S. Forest Service (Dixie and Fishlake National Forests)

U.S. Army Corps of Engineers

National Park Service

Utah Governor's Public Land Policy Coordination Office

Utah School and Institutional Trust Lands Administration

Counties: Beaver, Iron, Millard, Sevier, and Washington

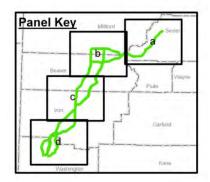
Communities: Enterprise and St. George

October 2012

ABOUT THE MAP VOLUME

This map volume (MV) accompanies the Final Environmental Impact Statement (EIS) for the Sigurd to Red Butte No. 2-345-kilvolt (kV) Transmission Project (Project), a proposed transmission line from the existing Sigurd Substation in Sevier County, Utah, to the existing Red Butte Substation in Washington County, Utah.

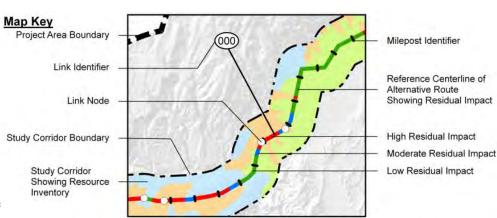
The map volume contains (1) a map showing construction access levels and (2) 15 maps showing resource inventory and impacts. Each map is divided into four panels illustrating four portions of the Project area. The north-easternmost panel (Panel a) illustrates the alternative route from Sigurd Substation to Cove Fort area. Panel b illustrates the alternative routes from the Cove Fort area to the Milford and Minersville area. Panel c illustrates the alternative routes from the Minersville area to the Antelope Range. Panel d illustrates the alternative routes from the Antelope Range to the Red Butte Substation.



Every map includes the same base information such as place and feature names, major highways and roads, and existing linear facilities (e.g., transmission lines and pipelines). Each map also includes certain basic Project information such as the alternative routes and substations.

The alternative routes are delineated on the maps and show the reference centerline, centered in the route corridor. Each route is divided into distinct segments referred to as links, which are numbered generally from northeast to southwest. It should be noted data are documented in a geographic information system (GIS) for every tenth mile and often reported in tables supporting the text in the EIS in tenths of a mile. However, for legibility, each link is marked on the maps at every mile; the markers are referred to as mileposts.

The width of the study corridor inventoried varies depending on the resource being addressed. Earth, water, biological, paleontological, and land use and recreation resources were inventoried within a 2-mile-wide study corridor (1 mile



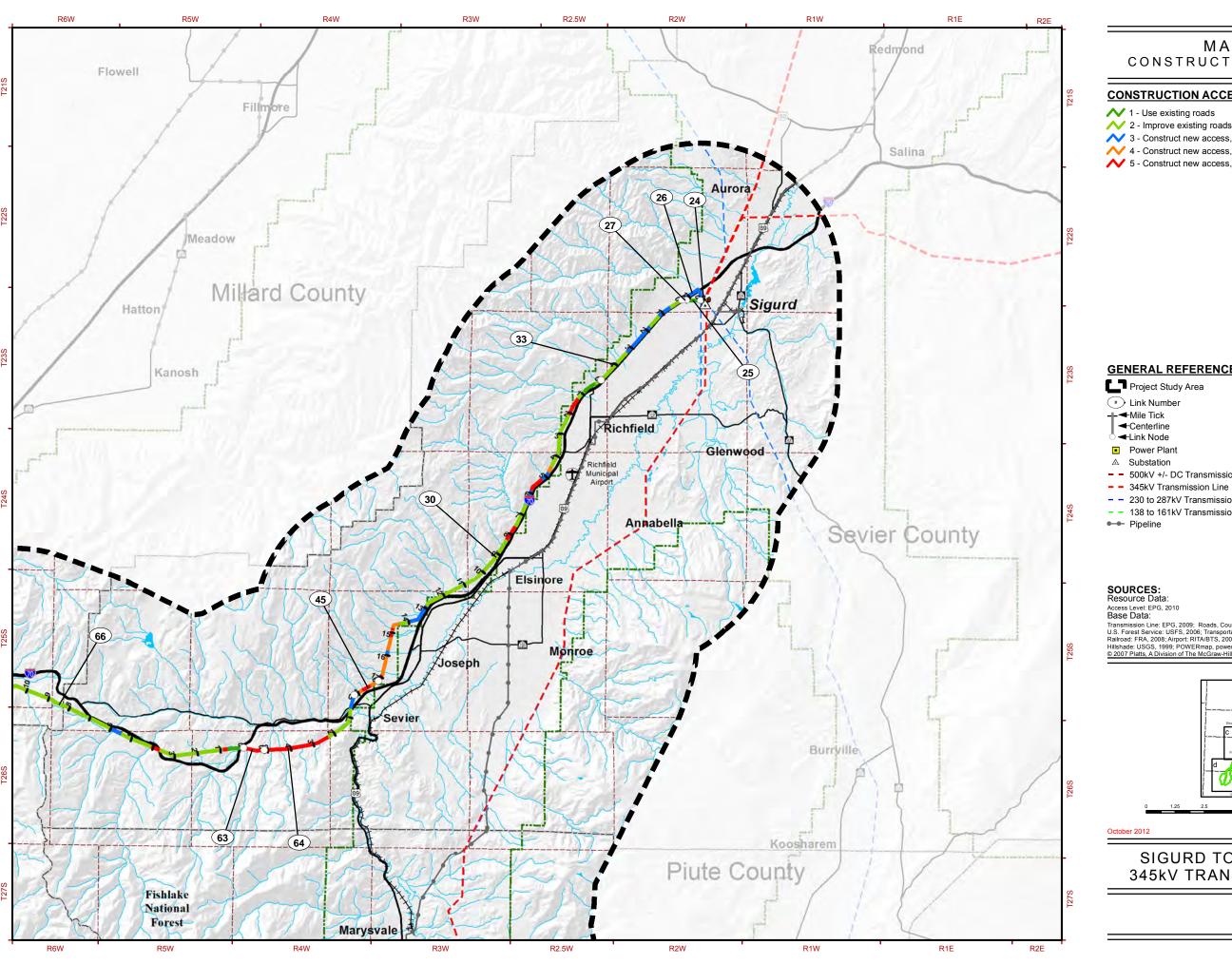
on either side of the reference centerline). Cultural resources were inventoried within a 4-mile-wide study corridor (2 miles on either side of the reference centerline). Visual resources were inventoried within a 6-mile-wide study corridor (3 miles on either side of the reference centerline). The inventoried baseline data are shown in the study corridor and impacts are shown along the reference centerline.

Each map consolidates and illustrates a variety of different information, and each legend explains the information unique to each map.

List of Maps

MV-1	Construction Access Levels
MV-2	Geological Hazards Inventory and Impacts
MV-3	Mineral Resources Inventory and Impacts
MV-4	Soil Resources Inventory and Impacts
MV-5	Water Resources Inventory and Impacts
MV-6	Vegetation Inventory and Impacts
MV-7	Sensitive Habitats Inventory and Impacts
MV-8	Crucial Big Game Inventory and Impacts
MV-9	Paleontological Resources Inventory and Sensitivity
MV-10	Landscape Scenery Inventory and Impacts
MV-11	Moderate Sensitivity Viewers Inventory and Impacts
MV-12	High Sensitivity Viewers Inventory and Impacts
MV-13	Visual Resource Management Objectives Inventory and Consistency
MV-14	Existing Land Use Inventory and Impacts
MV-15	Future Land Use Inventory and Impacts
MV-16	Recreation Resources Inventory and Impacts

Access Levels



MAP MV - 1aCONSTRUCTION ACCESS LEVELS

CONSTRUCTION ACCESS LEVELS

2 - Improve existing roads

→ 3 - Construct new access, flat to rolling terrain (0 to 8 percent slope)

4 - Construct new access, rolling terrain (8 to 15 percent slope)

★ 5 - Construct new access, steep terrain (greater than 15 percent slope)

GENERAL REFERENCE FEATURES

- 500kV +/- DC Transmission Line

- - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

County Boundary
U.S. Forest Service Boundary

Township Line

Interstate Highway - U.S. Highway - State Highway

++ Railroad Airport

 River or Stream Lake or Reservoir

Base Data:

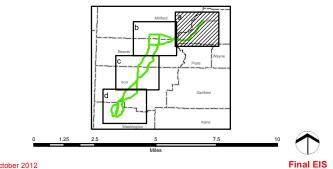
Transmission Line: EPG, 2009: Roads, County Boundary: ESRI, 2008

U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation

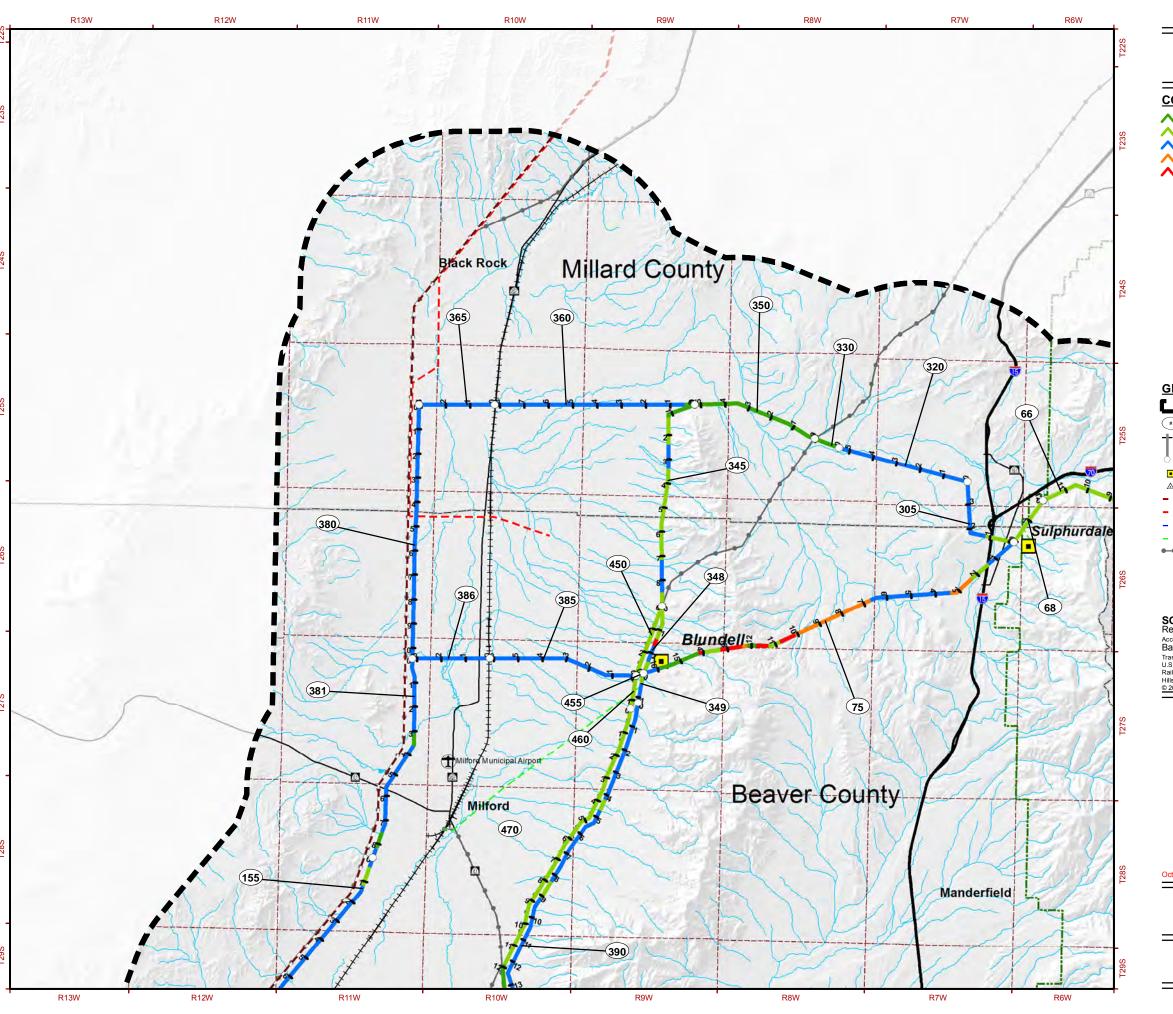
Railroad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006; Water, River, Stream: USGS, 2008

Hillshade: USGS, 1999; POWERmap, Dowermap, platts. com

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MAP MV - 1bCONSTRUCTION ACCESS LEVELS

CONSTRUCTION ACCESS LEVELS

1 - Use existing roads

2 - Improve existing roads

→ 3 - Construct new access, flat to rolling terrain (0 to 8 percent slope)

4 - Construct new access, rolling terrain (8 to 15 percent slope)

★ 5 - Construct new access, steep terrain (greater than 15 percent slope)

GENERAL REFERENCE FEATURES

Project Study Area

Link Number

-⊩---Mile Tick Centerline

Link Node

Power Plant

- 500kV +/- DC Transmission Line

 345kV Transmission Line - - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

--- Pipeline

County Boundary U.S. Forest Service Boundary

Township Line Interstate Highway

U.S. Highway

- State Highway

++ Railroad Airport

River or Stream

Lake or Reservoir

SOURCES: Resource Data:

Access Level: EPG, 2010 Base Data:

Base Data:

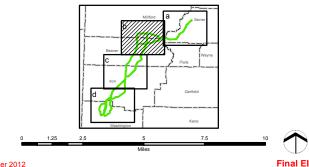
Transmission Line: EPG, 2009; Roads, County Boundary: ESRI, 2008

U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation

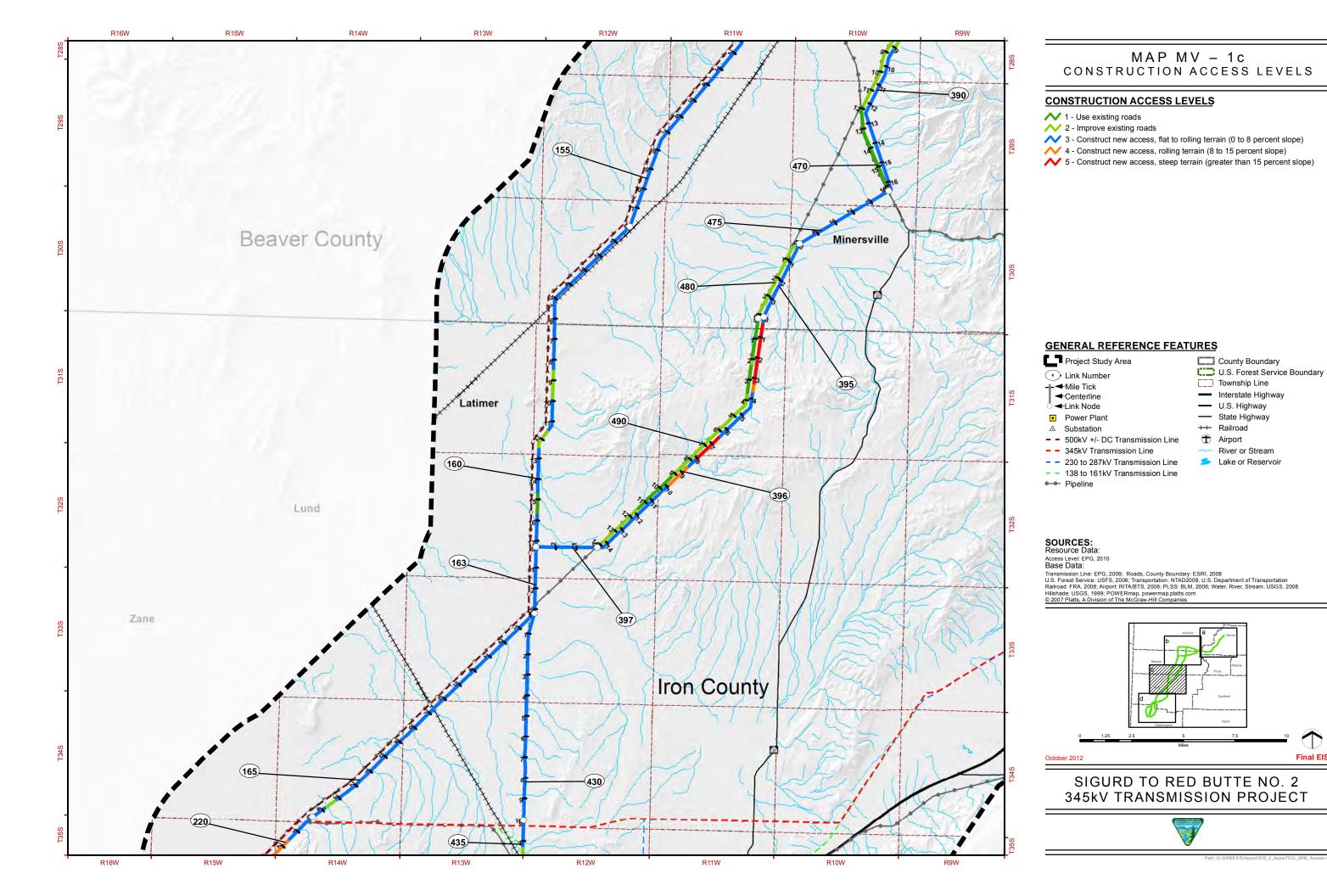
Railroad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006; Water, River, Stream: USGS, 2008

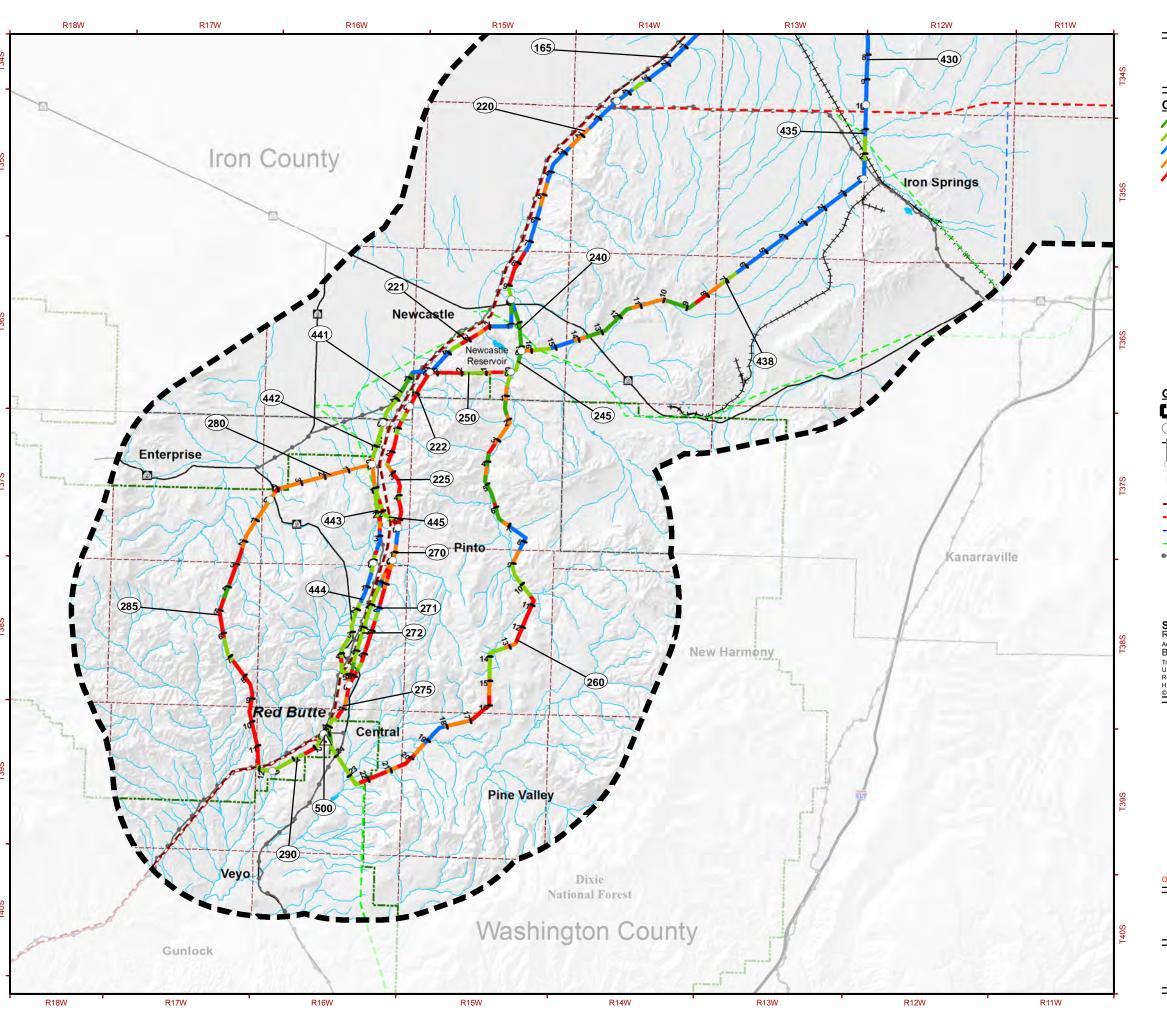
Hillshade: USGS, 1999; POWERmap, powermap,platts.com

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MAP MV - 1dCONSTRUCTION ACCESS LEVELS

CONSTRUCTION ACCESS LEVELS

1 - Use existing roads

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★ 5 - Construct new access, steep terrain (greater than 15 percent slope)

GENERAL REFERENCE FEATURES

Project Study Area

Link Number -⊩---Mile Tick

Centerline

Link Node

Power Plant

- 500kV +/- DC Transmission Line

- - 345kV Transmission Line

- - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

--- Pipeline

SOURCES: Resource Data:

Access Level: EPG, 2010 Base Data:

Base Data:

Transmission Line: EPG, 2009: Roads, County Boundary: ESRI, 2008

U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation

Railroad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006; Water, River, Stream: USGS, 2008

Hillshade: USGS, 1999; POWERmap, Dowermap.platts.com

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SIGURD TO RED BUTTE NO. 2 345kV TRANSMISSION PROJECT



County Boundary
U.S. Forest Service Boundary

Interstate Highway

Township Line

- U.S. Highway

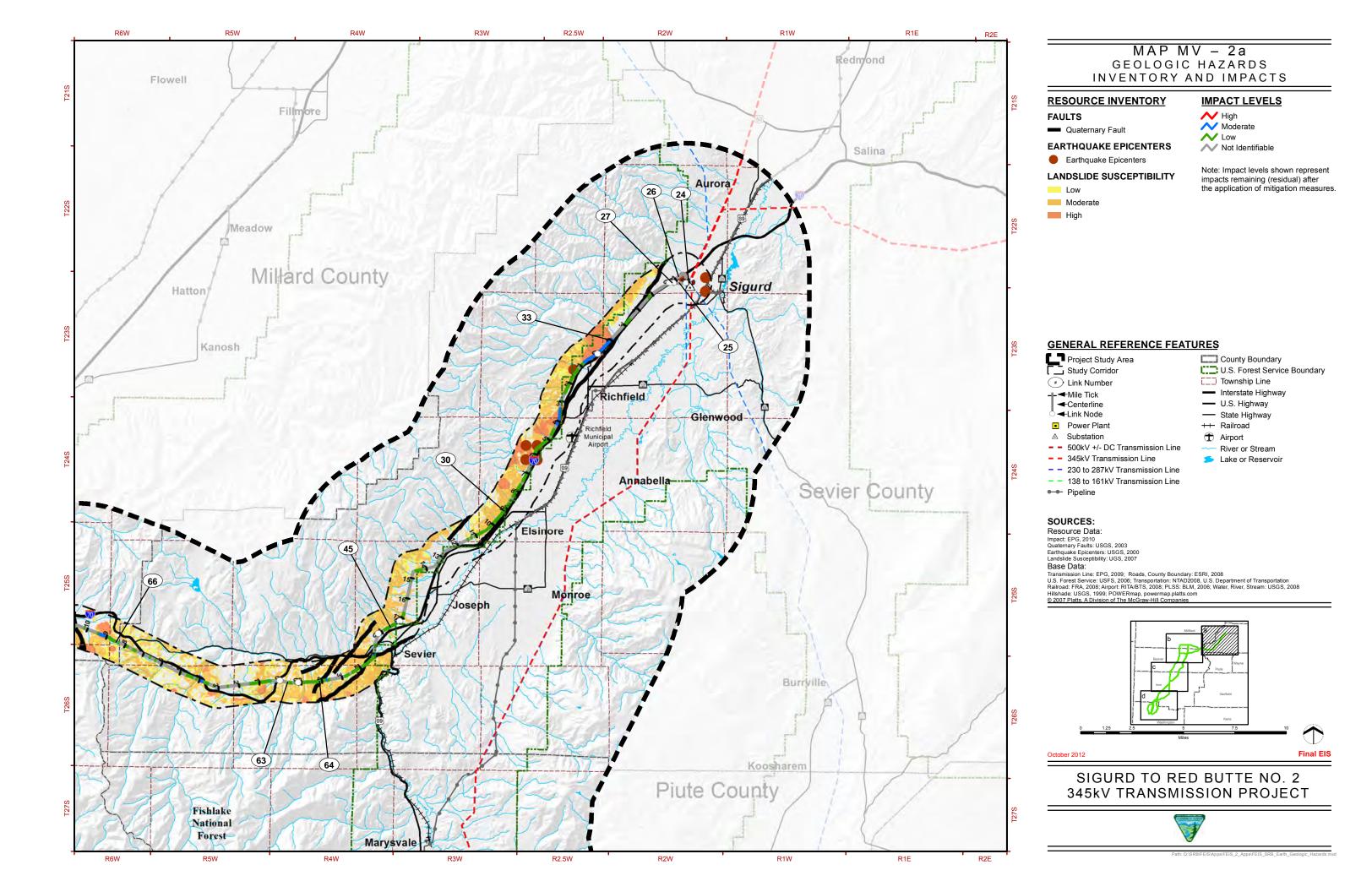
- State Highway

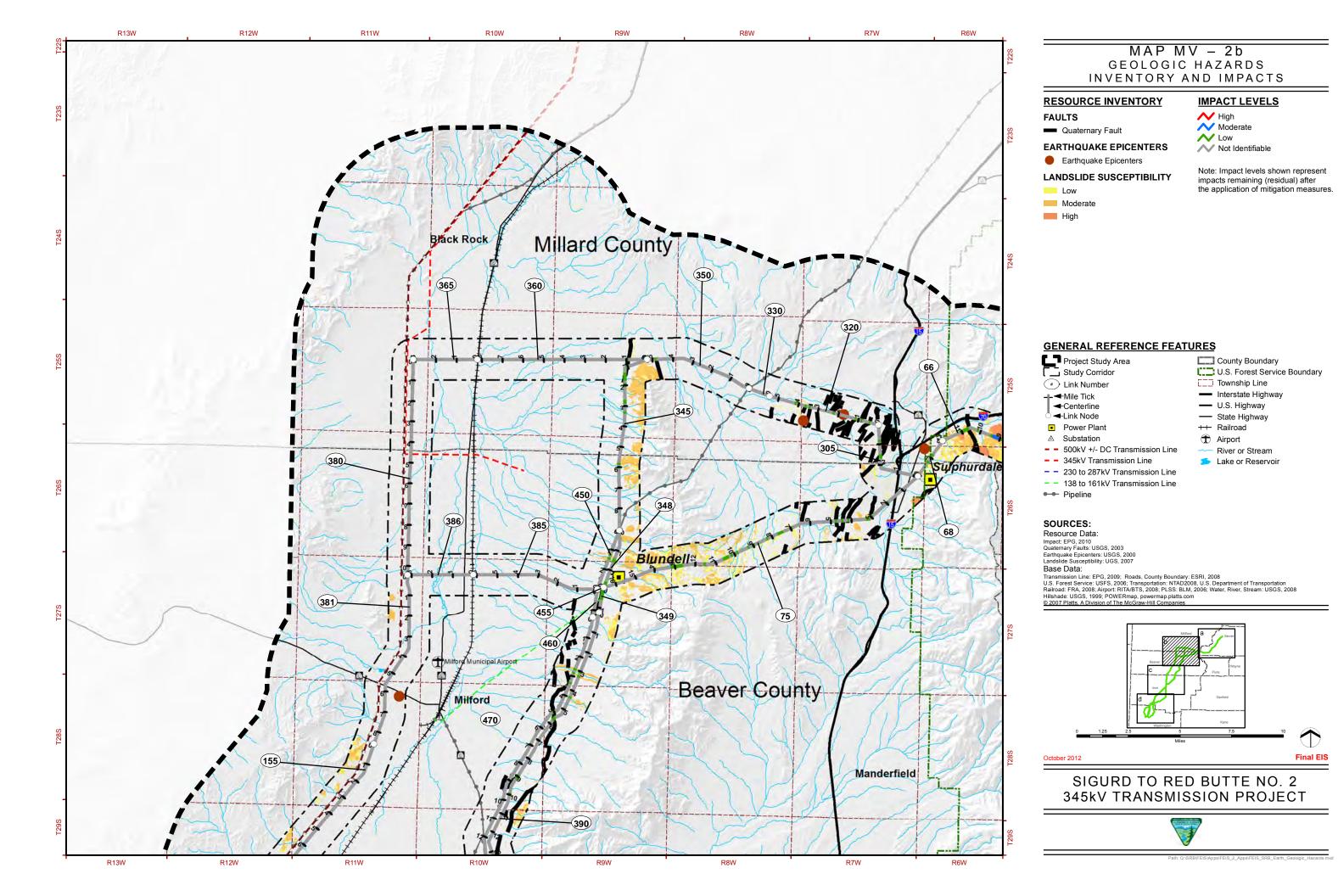
 River or Stream Lake or Reservoir

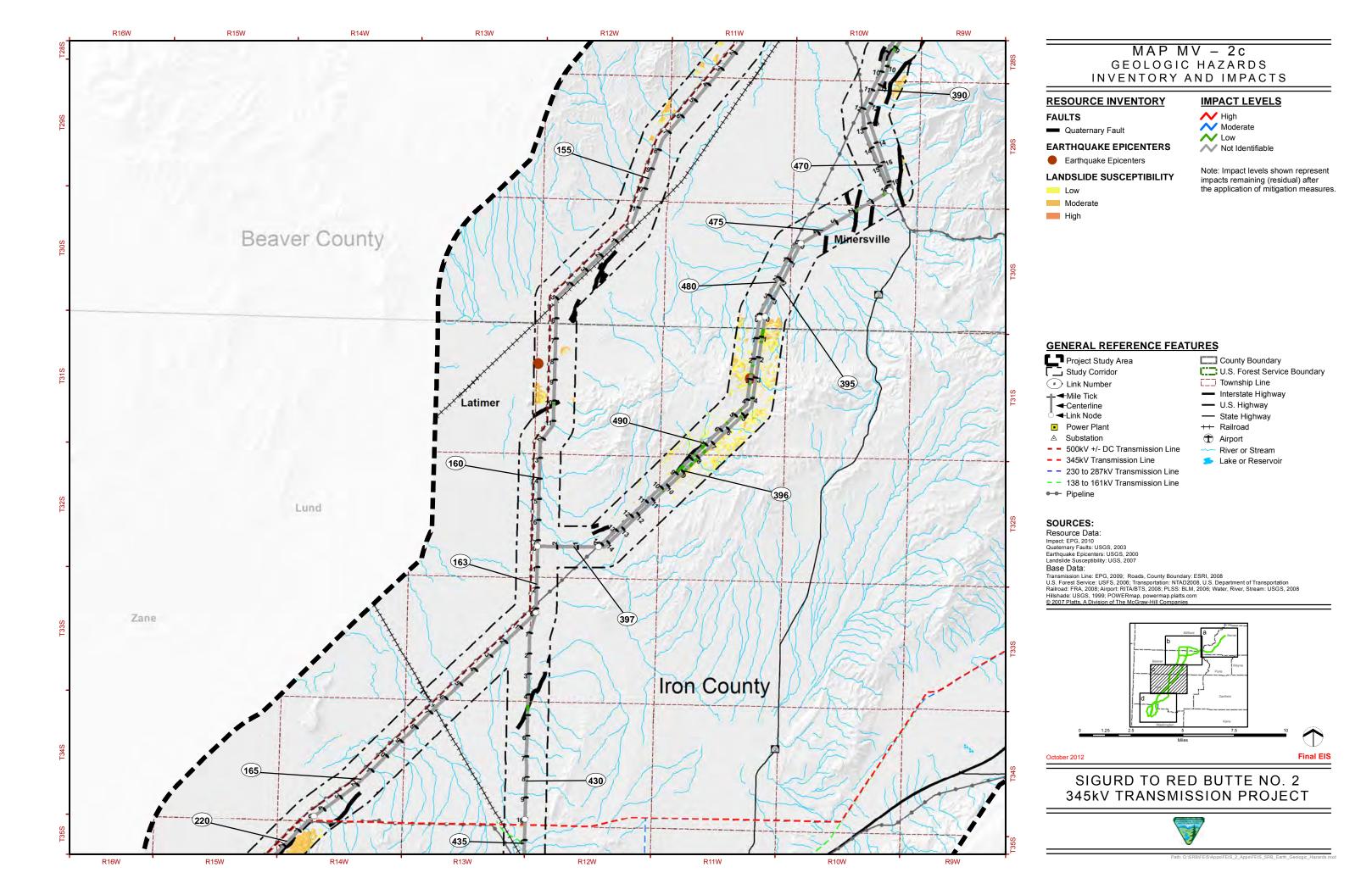
++ Railroad

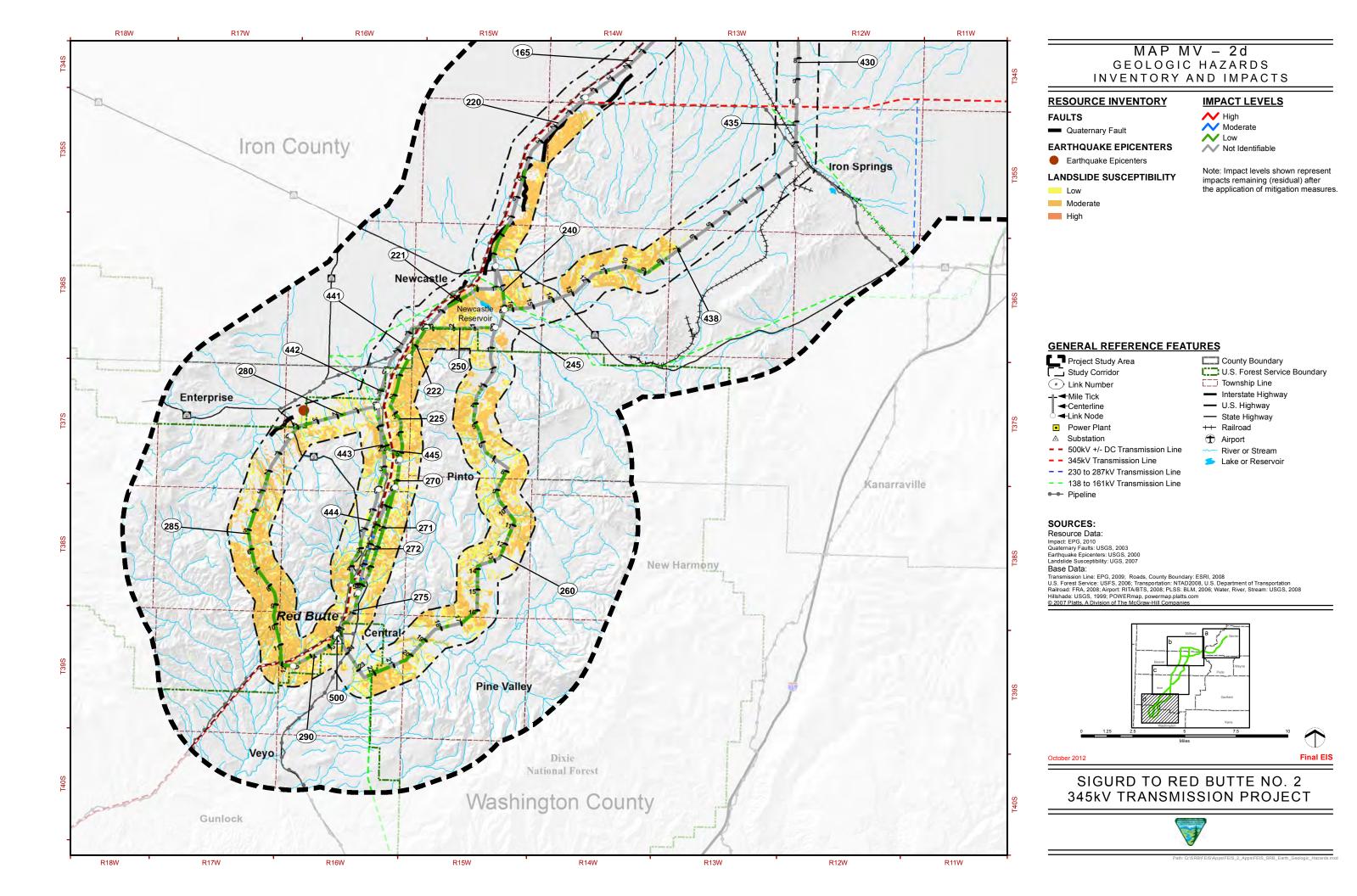
Airport

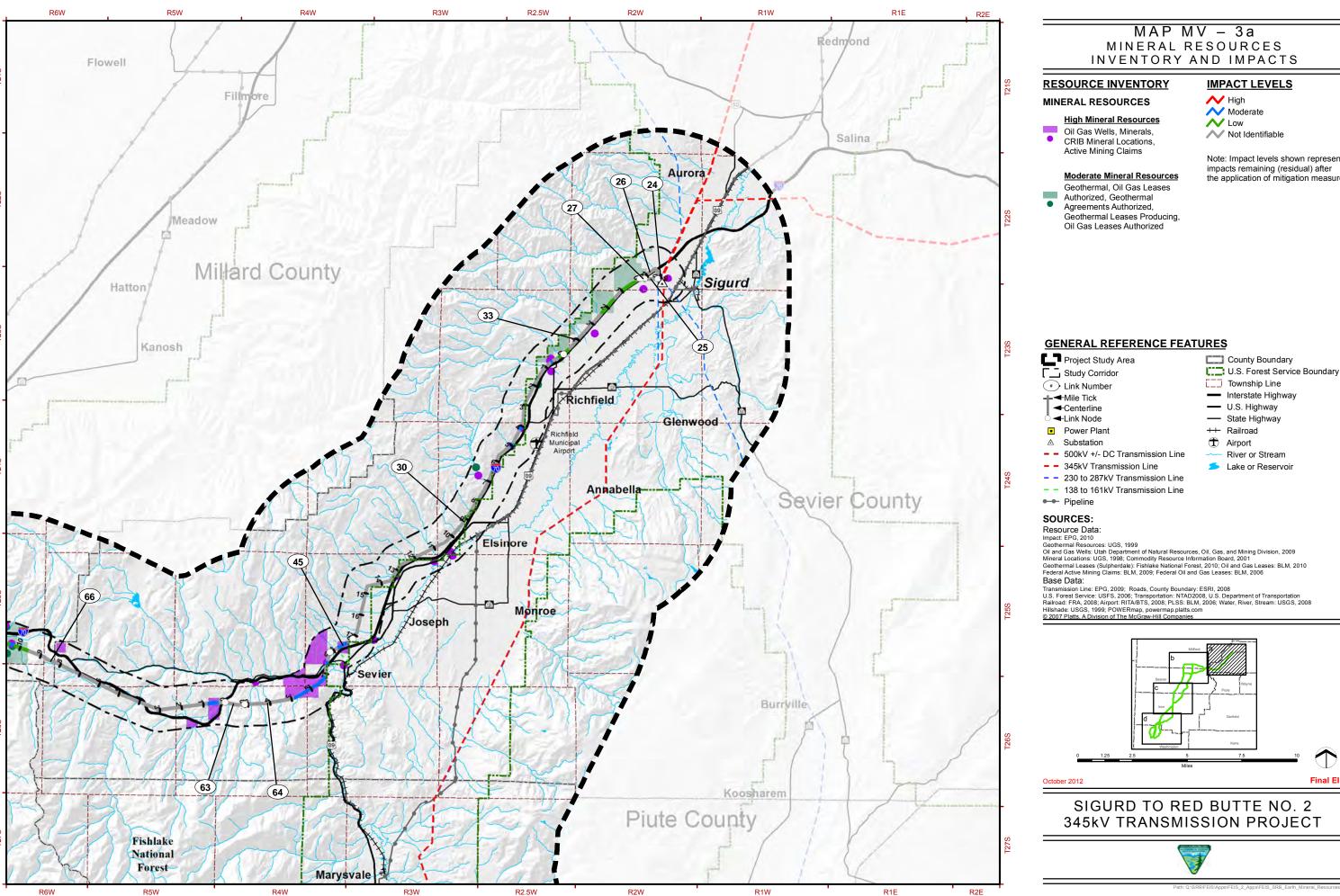






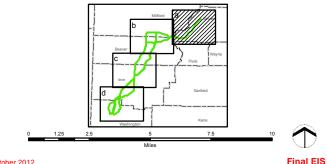


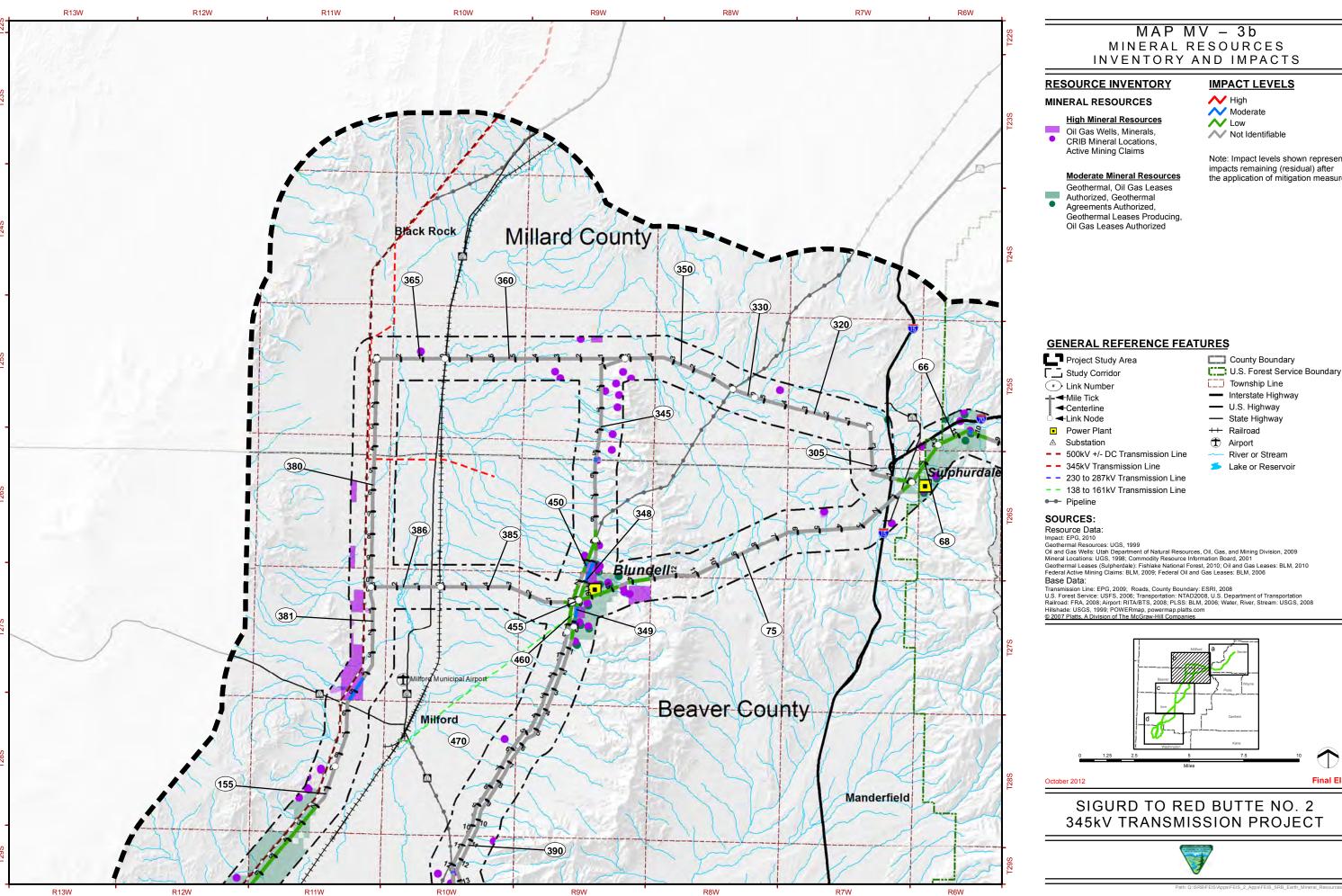




MINERAL RESOURCES INVENTORY AND IMPACTS

Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.



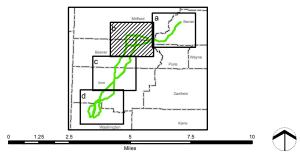


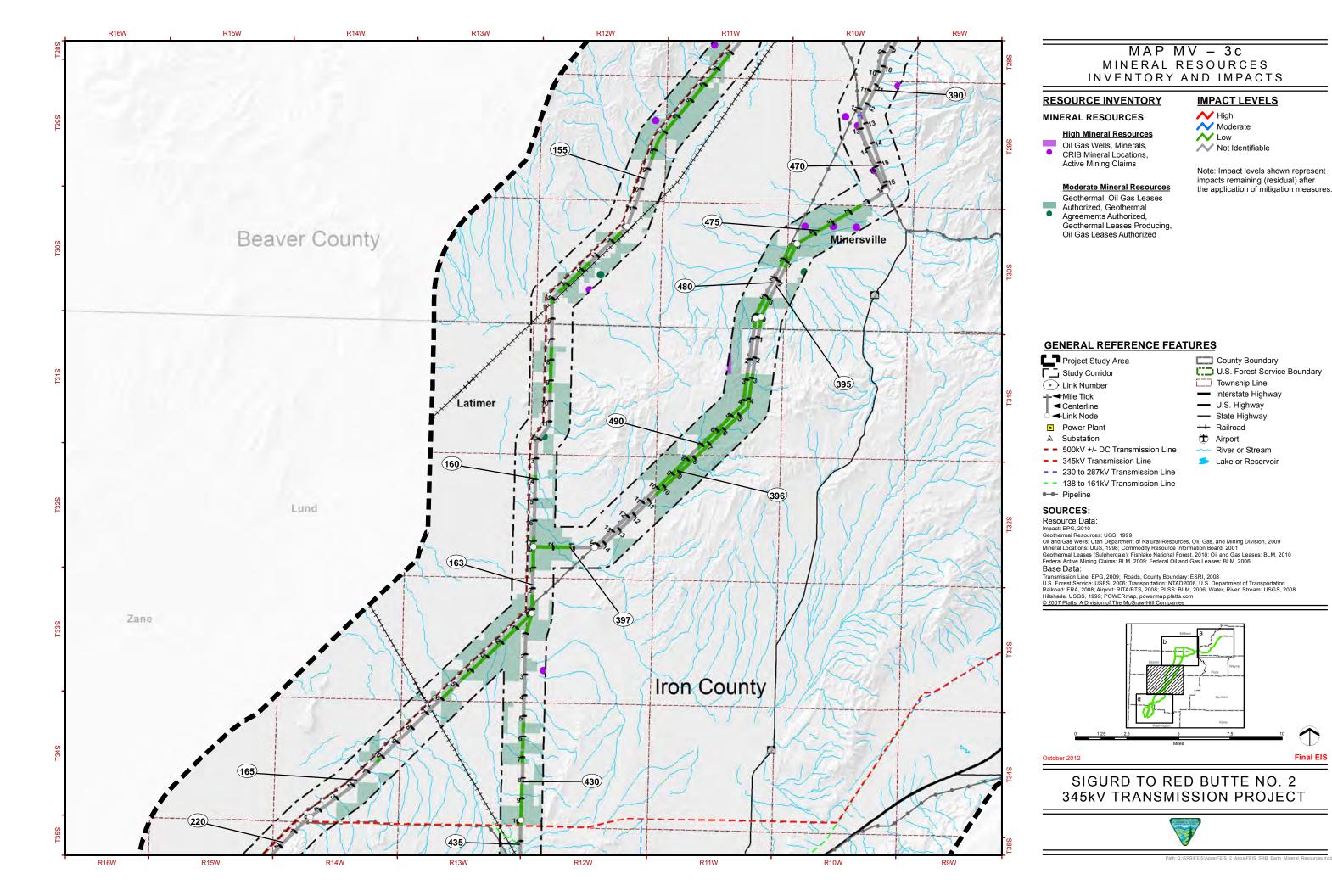
MINERAL RESOURCES INVENTORY AND IMPACTS

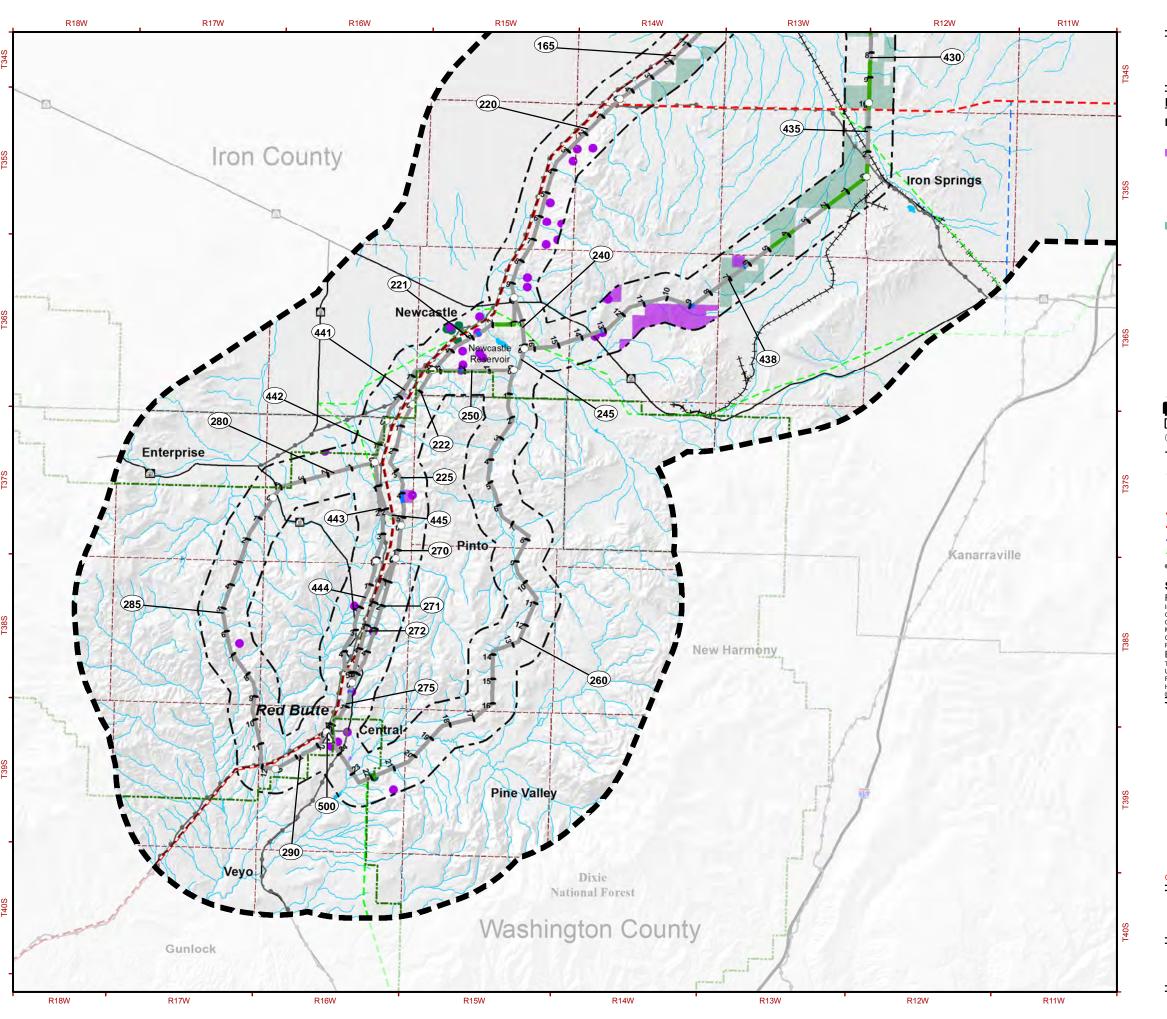
IMPACT LEVELS

Not Identifiable

Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.







MAP MV - 3d MINERAL RESOURCES INVENTORY AND IMPACTS

IMPACT LEVELS RESOURCE INVENTORY

MINERAL RESOURCES

High Mineral Resources

Oil Gas Wells, Minerals, CRIB Mineral Locations, Active Mining Claims

Moderate Mineral Resources

Geothermal, Oil Gas Leases Authorized, Geothermal Agreements Authorized, Geothermal Leases Producing, Oil Gas Leases Authorized

✓ High

✓ Moderate ✓ Low

Not Identifiable

County Boundary

Interstate Highway

River or Stream

Lake or Reservoir

[__ Township Line

- U.S. Highway

- State Highway

++ Railroad

Airport

U.S. Forest Service Boundary

Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.

GENERAL REFERENCE FEATURES

Project Study Area Study Corridor

Link Number

-----Mile Tick Centerline

Link Node Power Plant

△ Substation

- 500kV +/- DC Transmission Line

- - 345kV Transmission Line

- - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

--- Pipeline

SOURCES:

Resource Data:

Impact: EPG, 2010
Geothermal Resources: UGS, 1999
Oil and Gas Wells: Utah Department of Natural Resources, Oil, Gas, and Mining Division, 2009
Mineral Locations: UGS, 1998; Commodity Resource Information Board, 2001
Geothermal Leases (Sulpherdale): Fishlake National Forest, 2010; Oil and Gas Leases: BLM, 2010
Federal Active Mining Claims: BLM, 2009; Federal Oil and Gas Leases: BLM, 2006
Base Data:

Base Data:

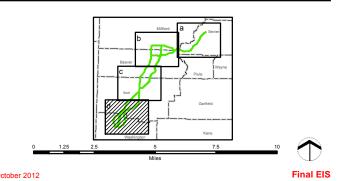
Transmission Line: EPG, 2009: Roads, County Boundary: ESRI, 2008

U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation

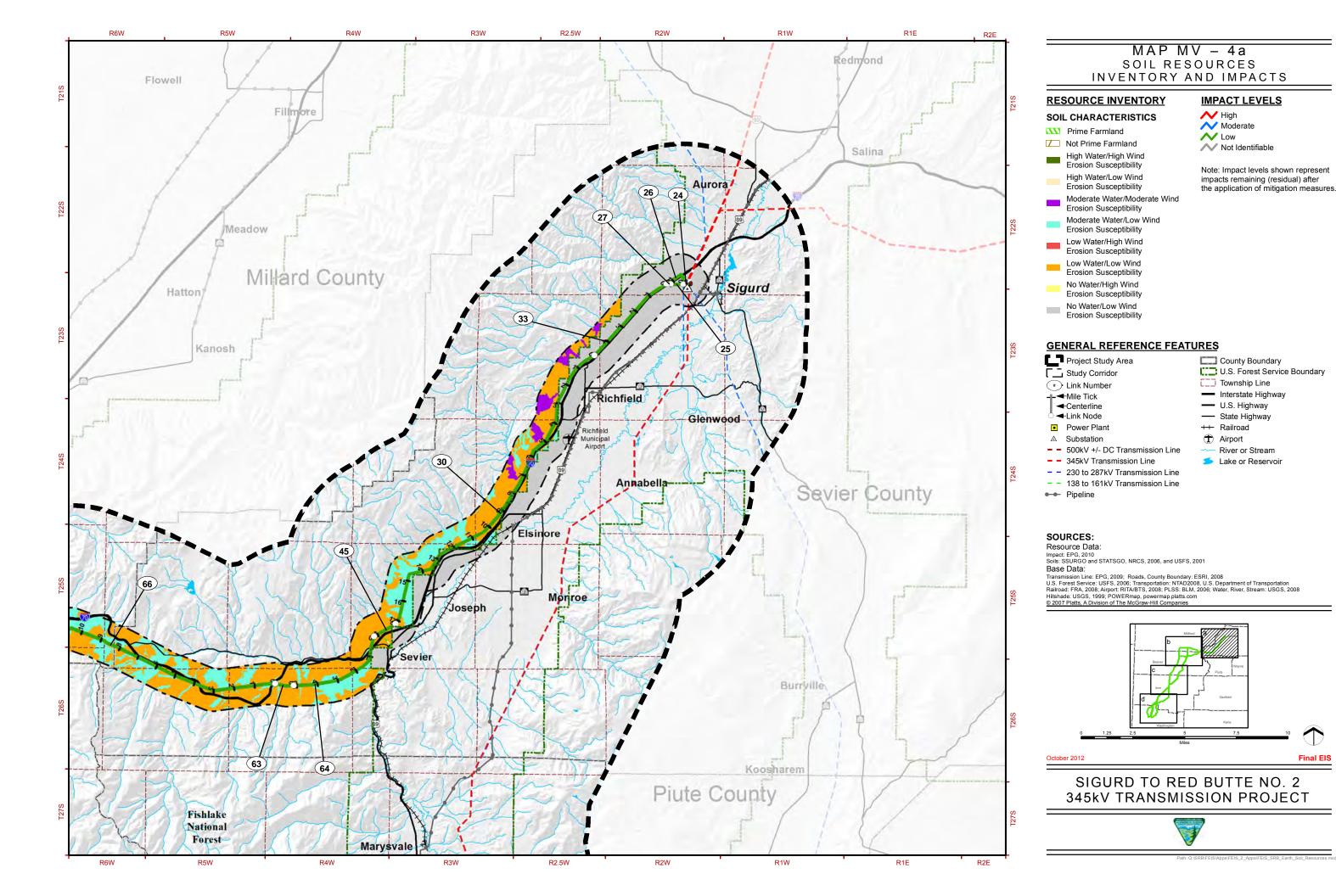
Railroad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006; Water, River, Stream: USGS, 2008

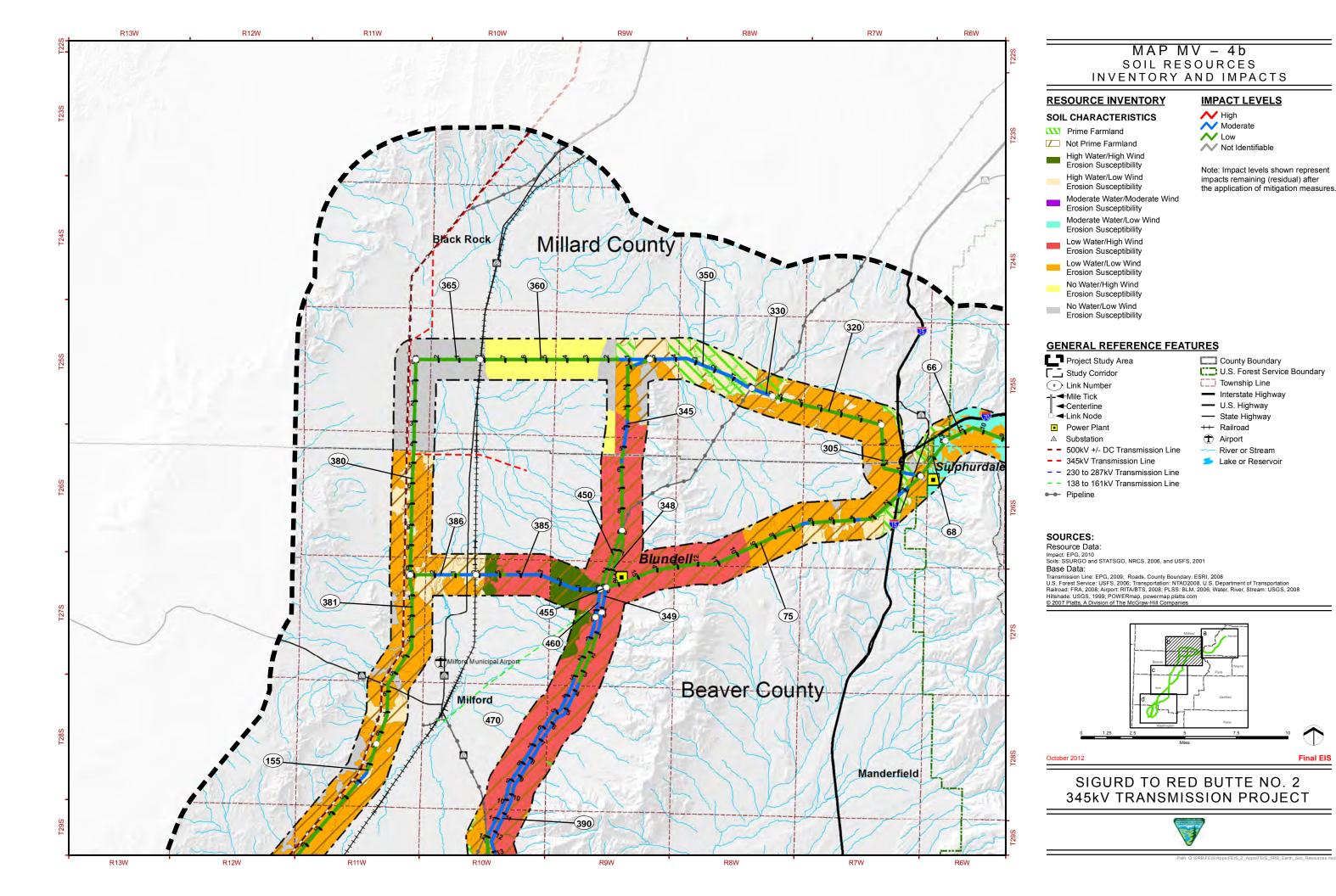
Hilshade: USGS, 1999; POWERmap, Dowermap.platts.com

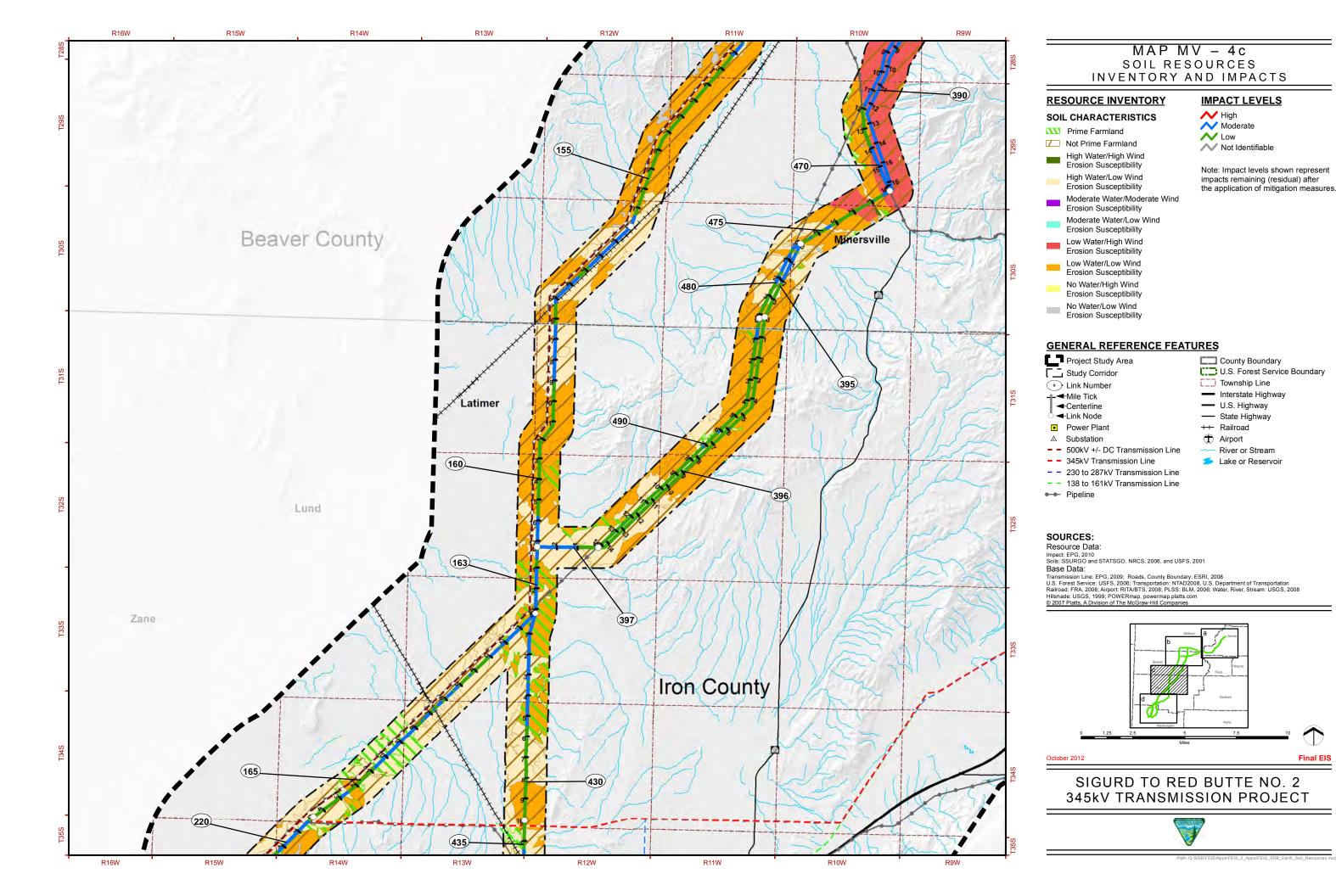
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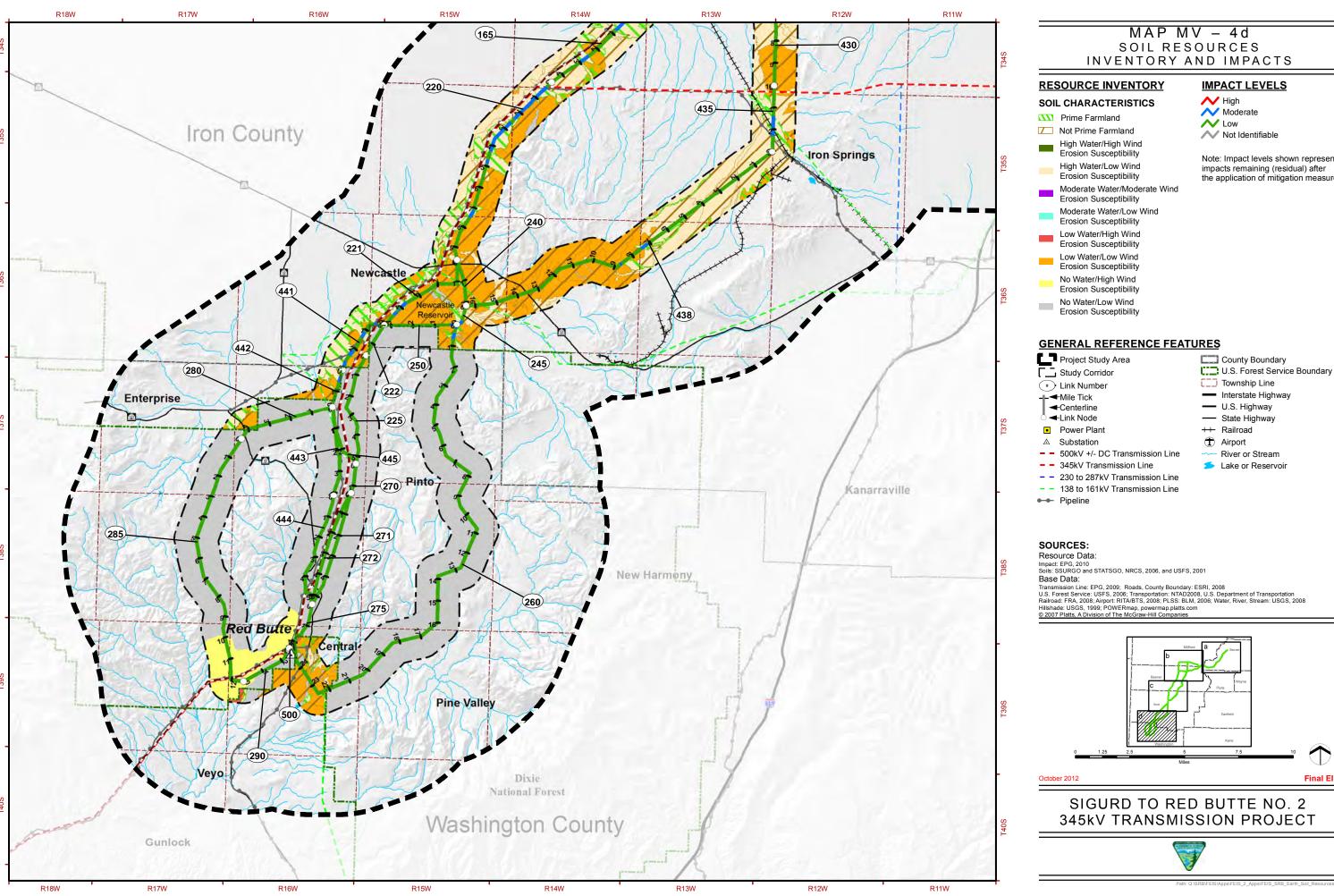










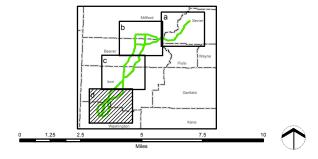


SOIL RESOURCES

IMPACT LEVELS

✓ Not Identifiable

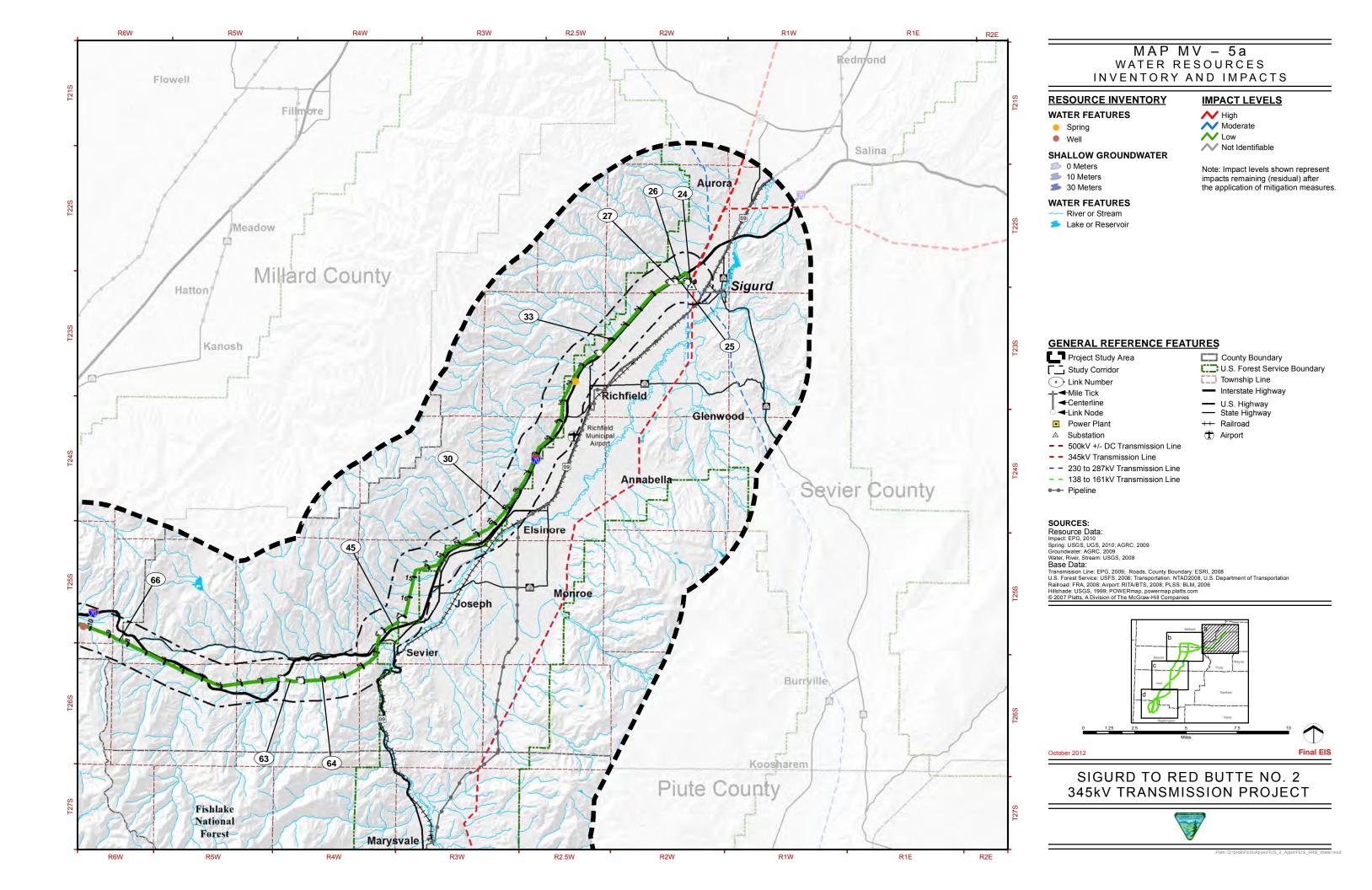
Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.

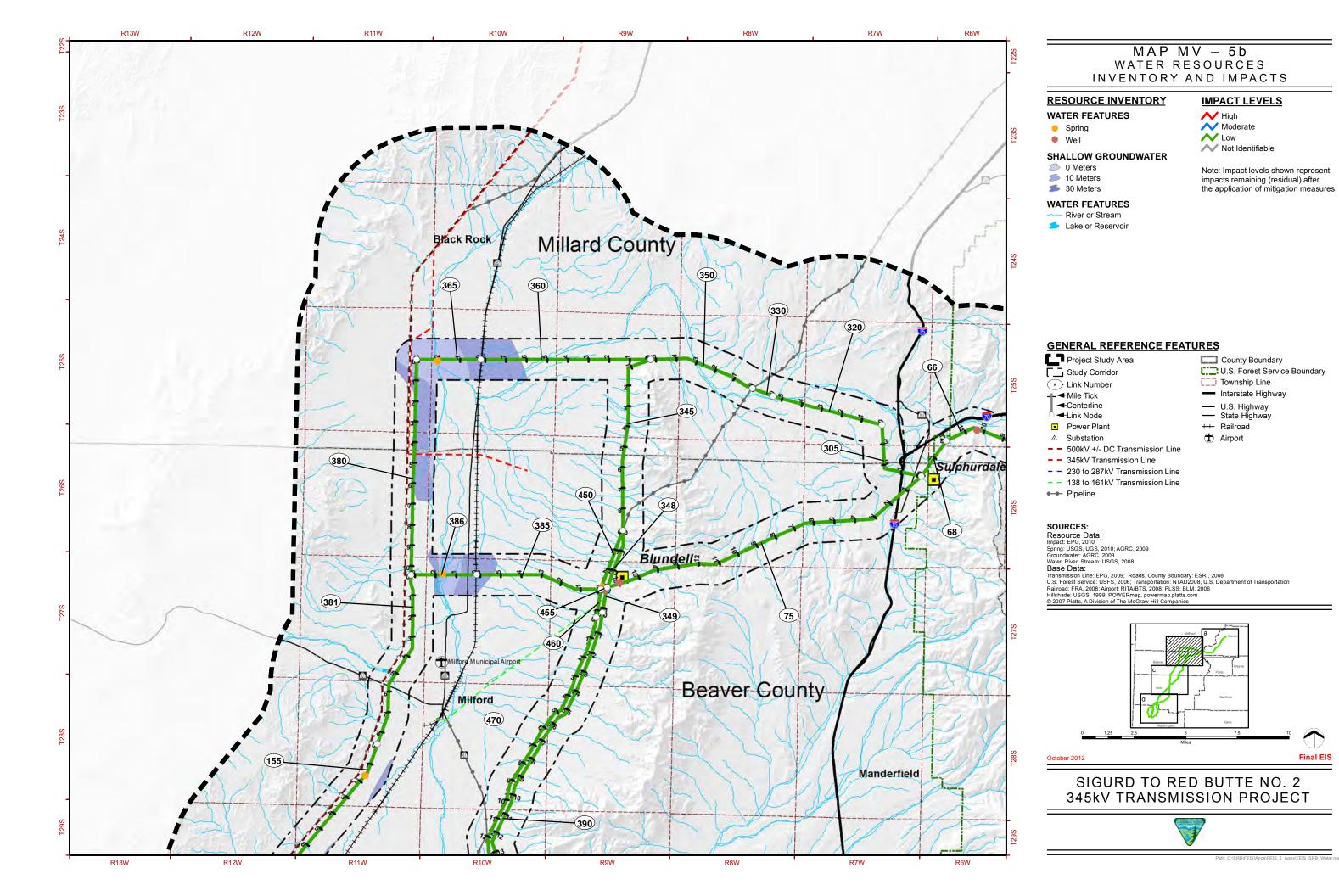


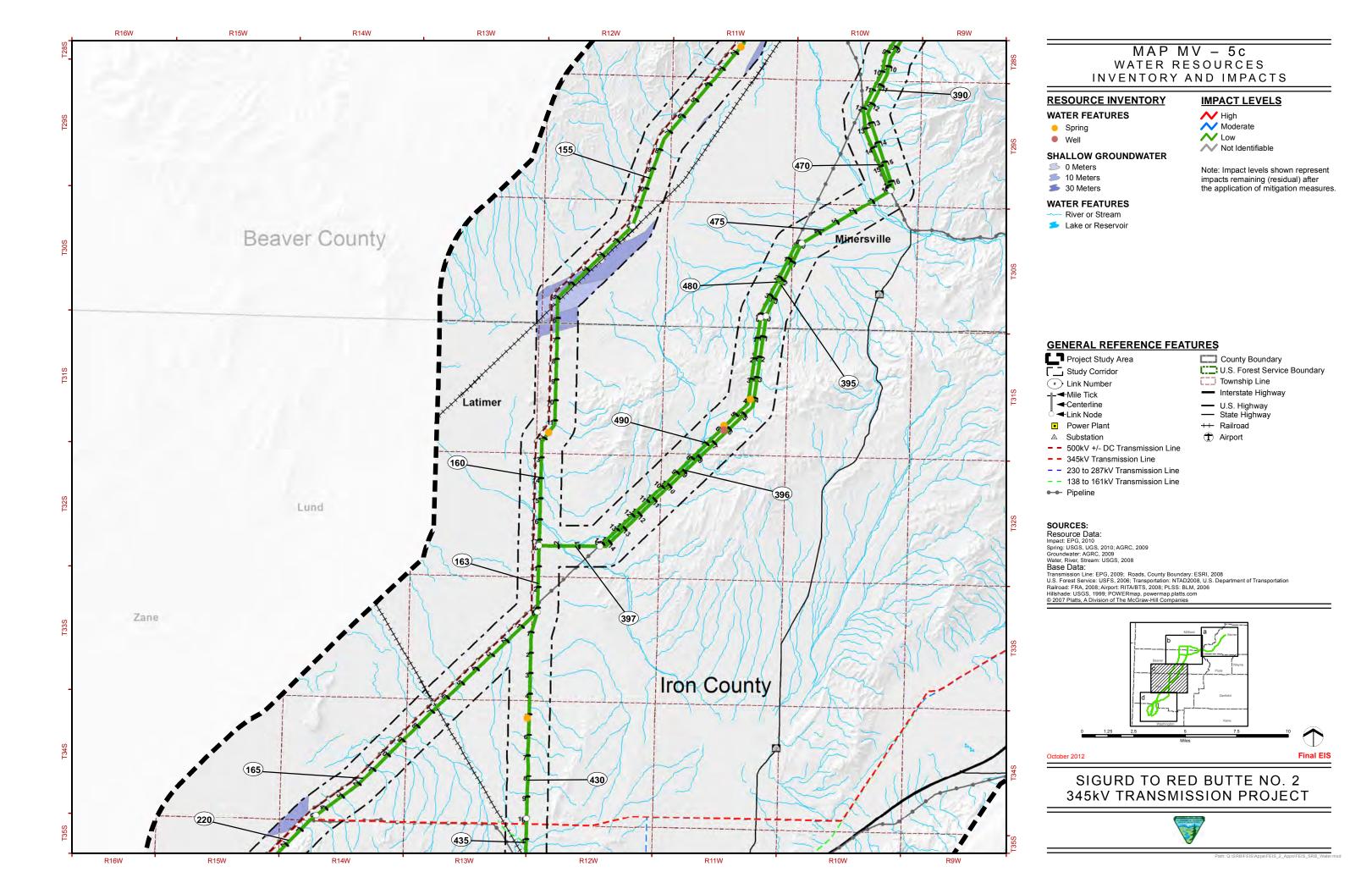
SIGURD TO RED BUTTE NO. 2

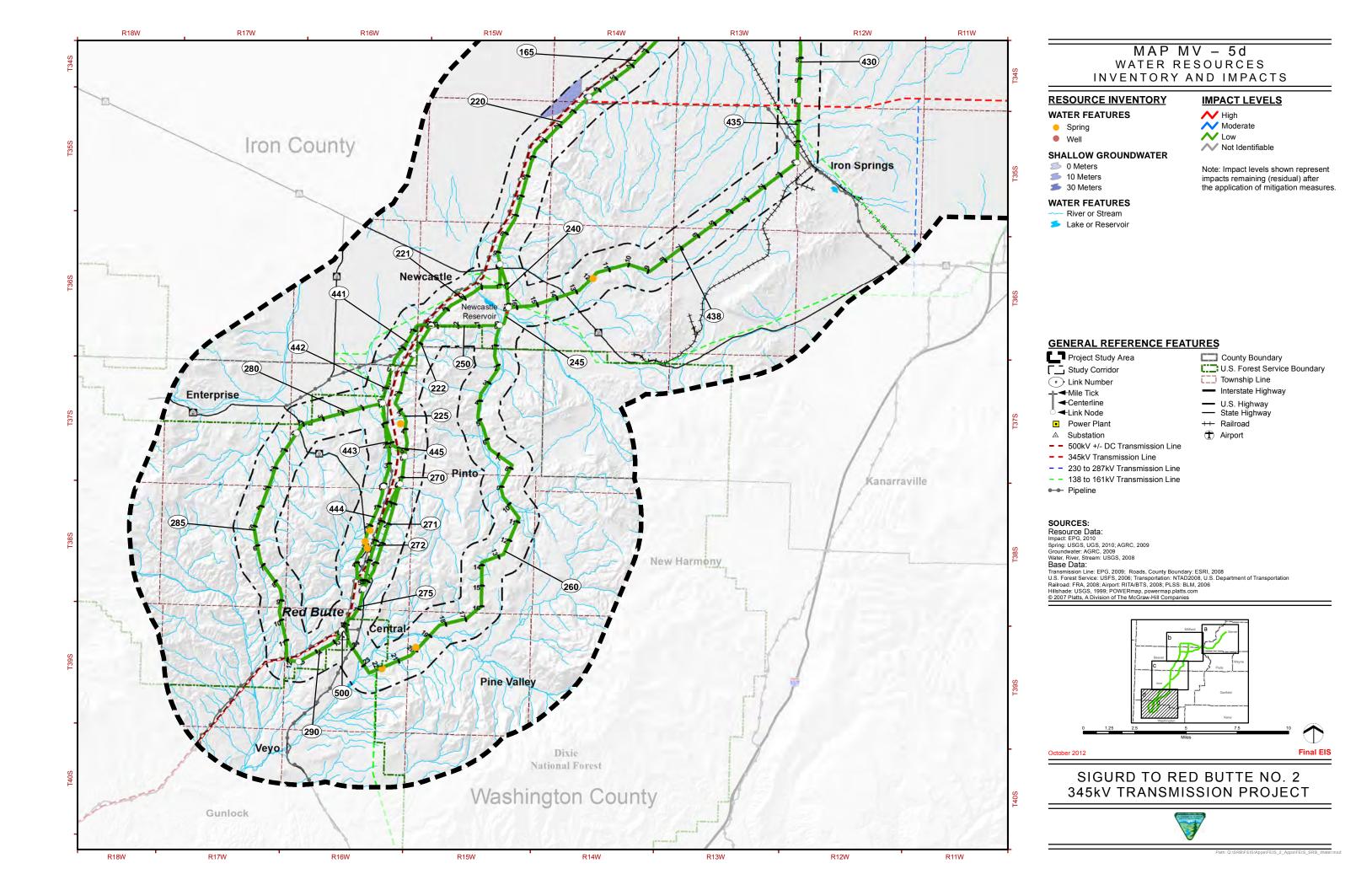


Water Resources

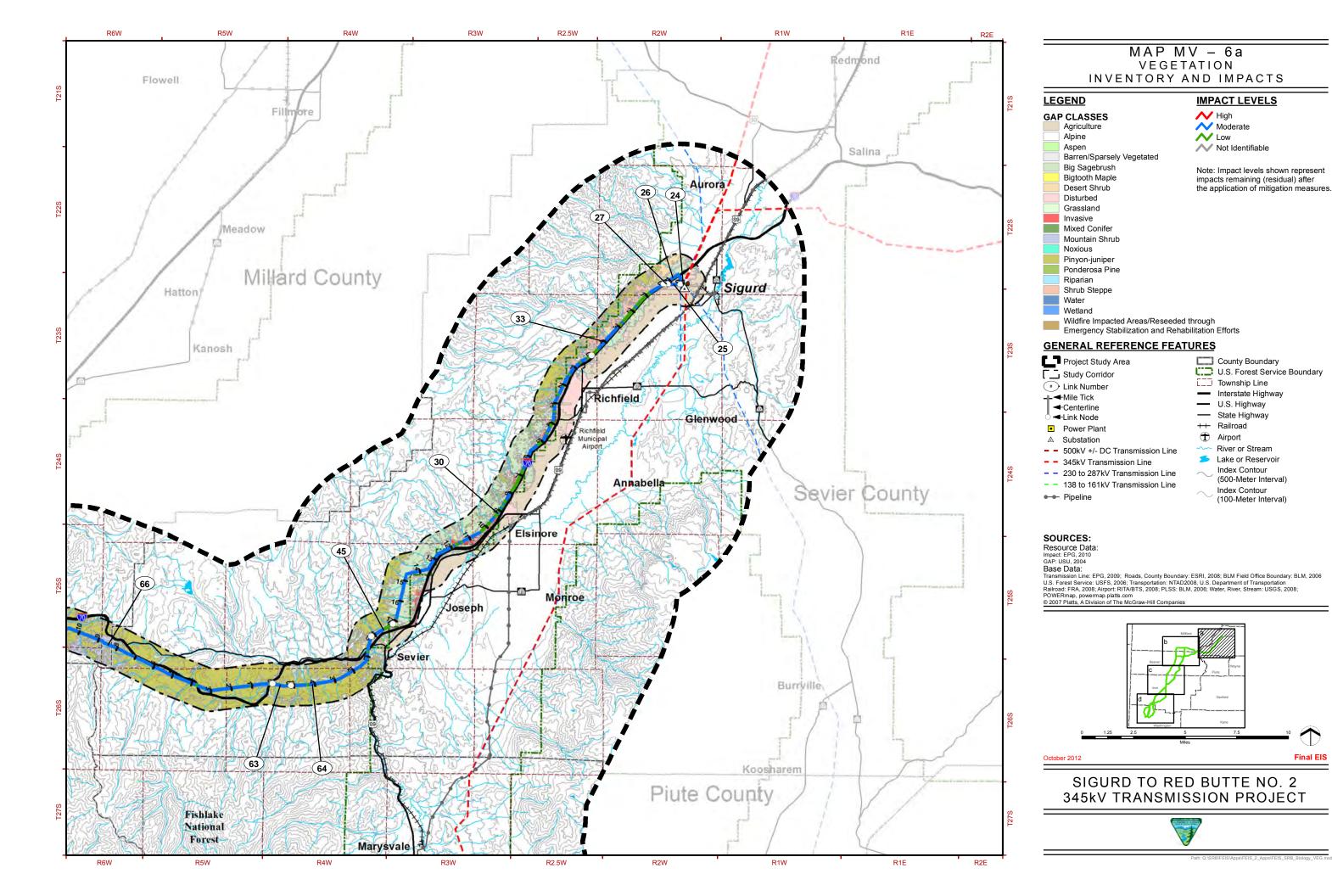


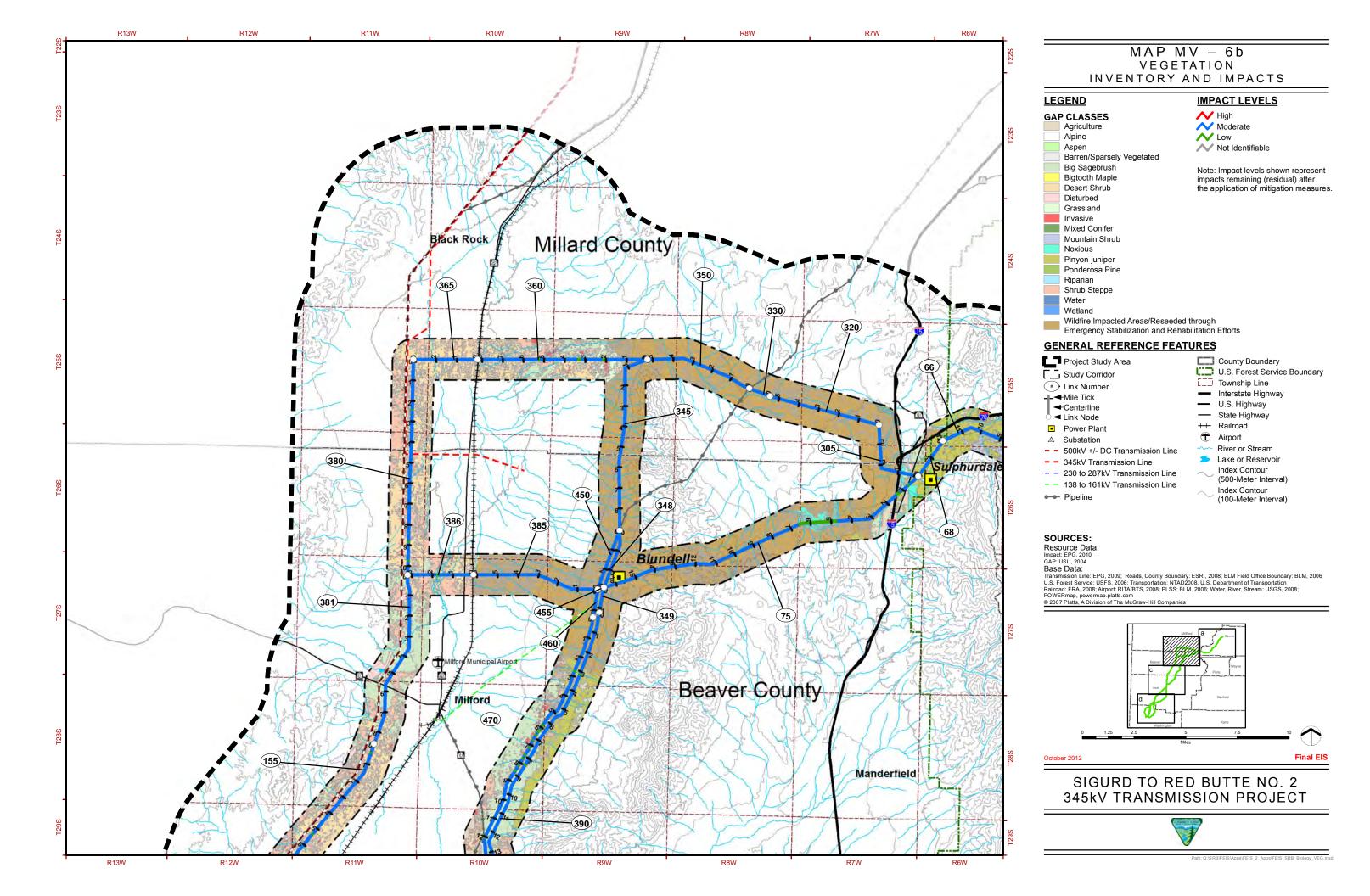


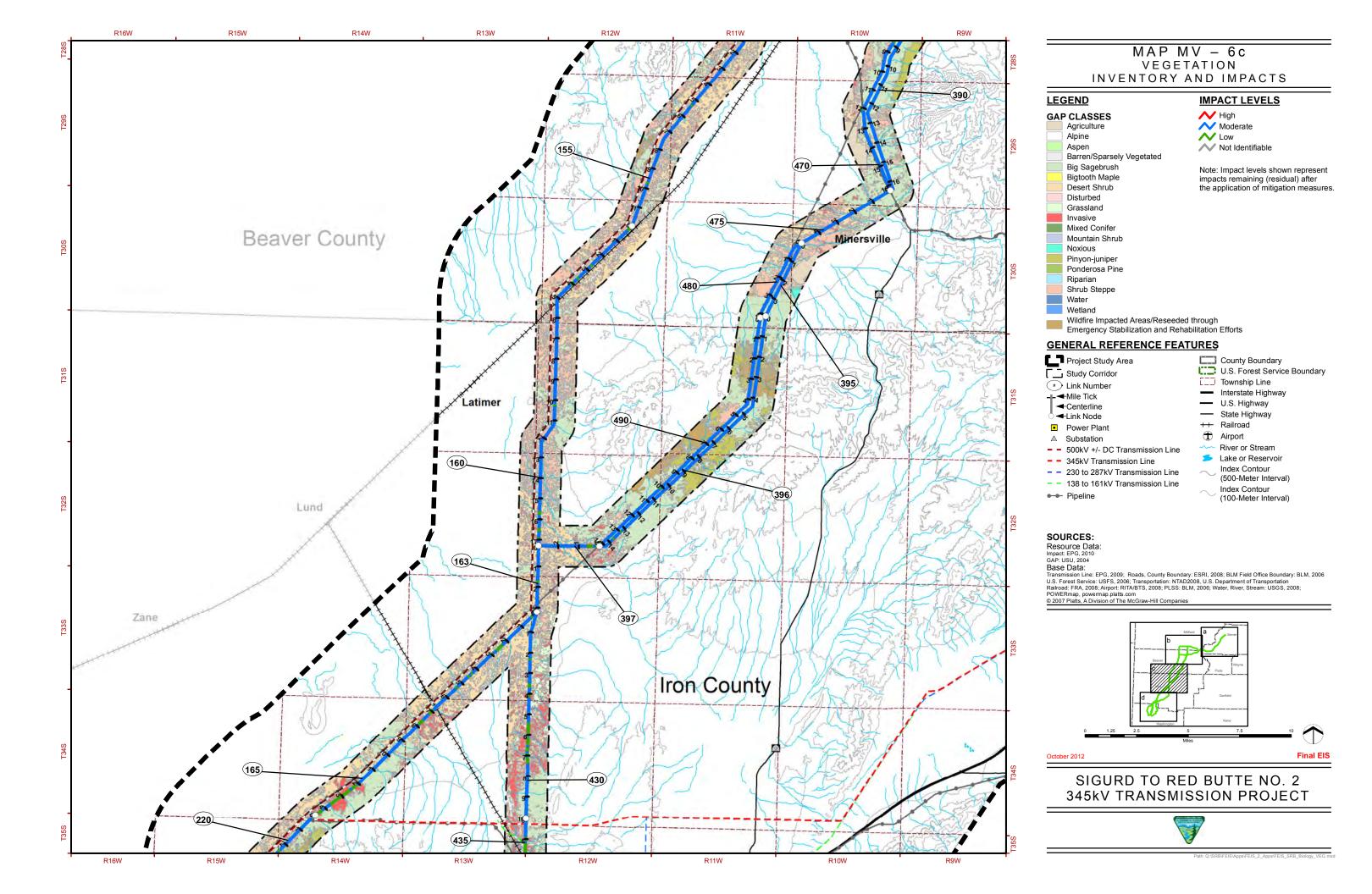


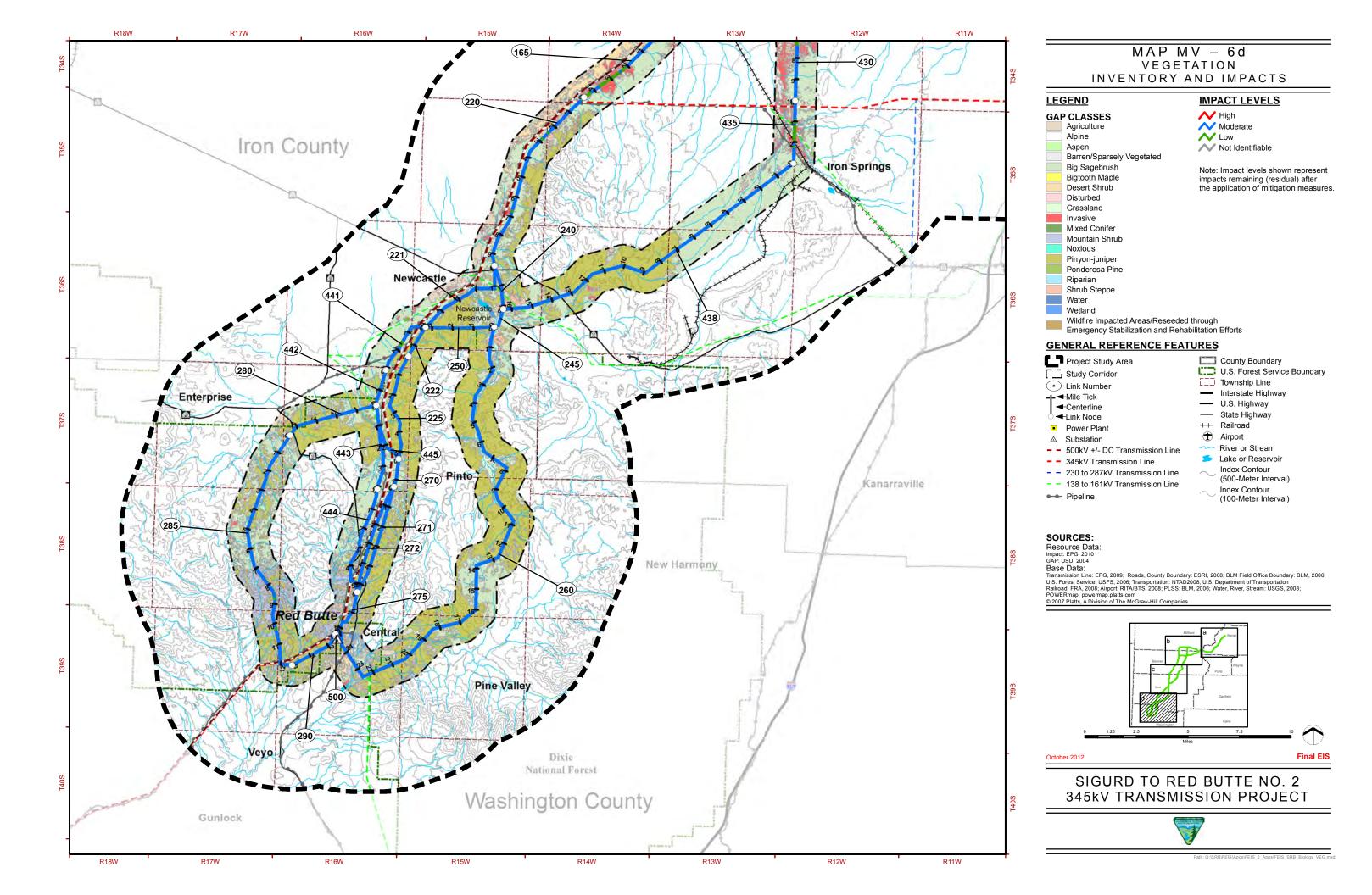


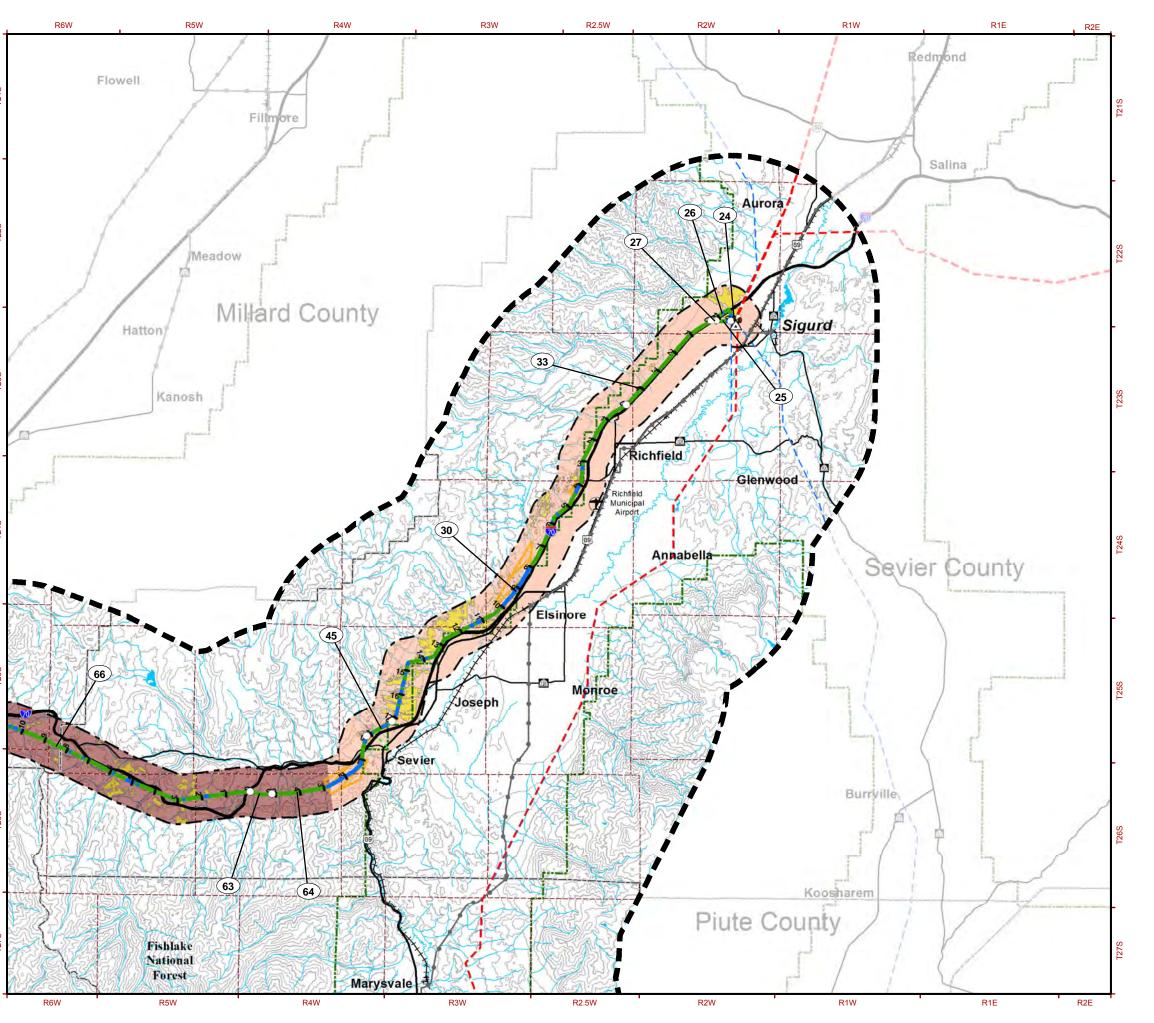












MAP MV - 7a SENSITIVE HABITATS INVENTORY AND IMPACTS

RESOURCE INVENTORY IMPACT LEVELS

PYGMY RABBIT HABITAT

Potential Habitat

SAGE-GROUSE HABITAT

Crucial Brood-rearing Habitat

Crucial Winter Habitat

SENSITIVE PLANT HABITAT

Elsinore buckwheat, Ward's beardtongue, Utah phacelia Pinyon penstemon

RAPTOR HABITAT

High Quality

Medium Quality Low Quality

Note: Pre-construction surveys for these species will be conducted for the selected route in 2011-2012.

✓ High

✓ Moderate

✓ Low ✓ Not Identifiable

Note: Impact levels shown are derived from sensitive habitats and threatened and endangered species and represent impacts remaining (residual) after the application of mitigation measures.

County Boundary
U.S. Forest Service Boundary
Township Line

Interstate Highway

River or Stream

Lake or Reservoir

Index Contour

Index Contour

(500-Meter Interval)

(100-Meter Interval)

U.S. Highway

- State Highway

++ Railroad

Airport

GENERAL REFERENCE FEATURES

Project Study Area Study Corridor

(#) Link Number

←Centerline Link Node

Power Plant ∆ Substation

- 500kV +/- DC Transmission Line

- 345kV Transmission Line - - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

--- Pipeline

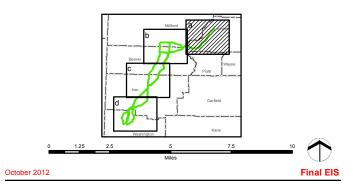
SOURCES:

Resource Data: Impact: EPG, 2010

Sage-Grouse Habitat: UDWR, 2011
Pygmy Rabbit EPG, 2011; Sensitive Plants: EPG, 2010
Raptor: UDWR, 2010
Base Data:

BASE DATA:
Transmission Line: EPG, 2009; Roads, County Boundary: ESRI, 2008
U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation
Railtoad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006
Water, River, Stream: USGS, 2008

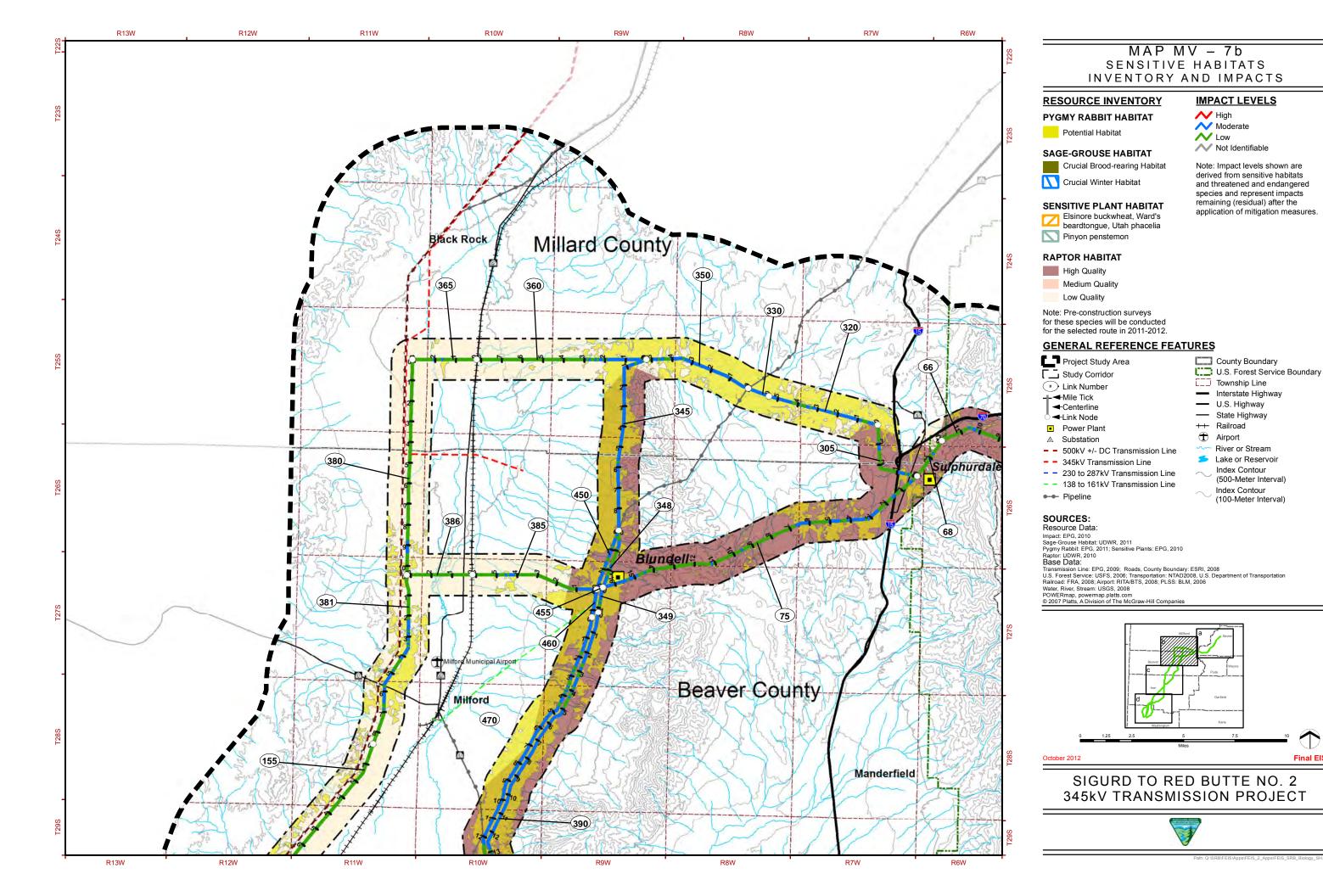
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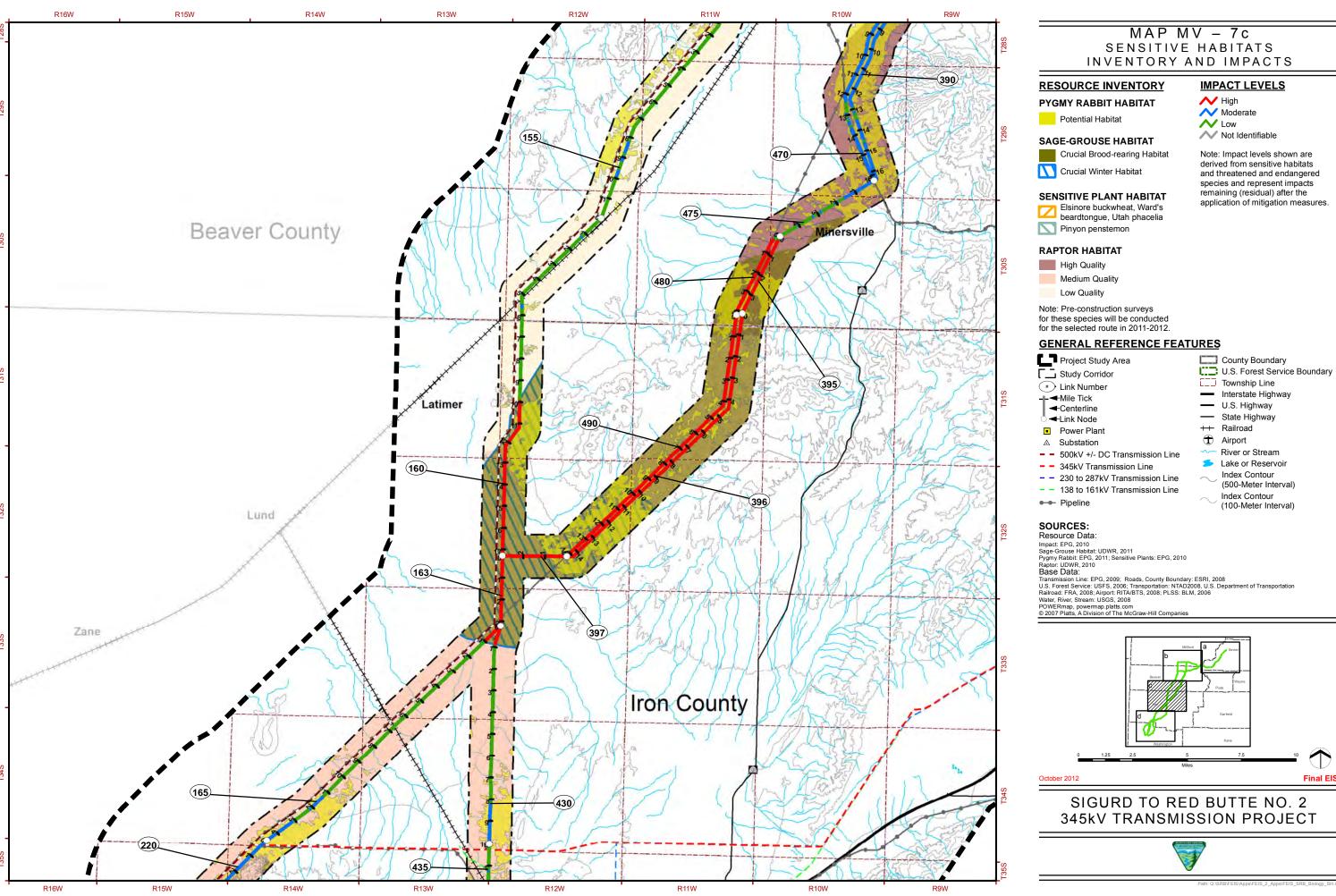


SIGURD TO RED BUTTE NO. 2



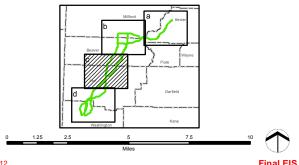
345kV TRANSMISSION PROJECT

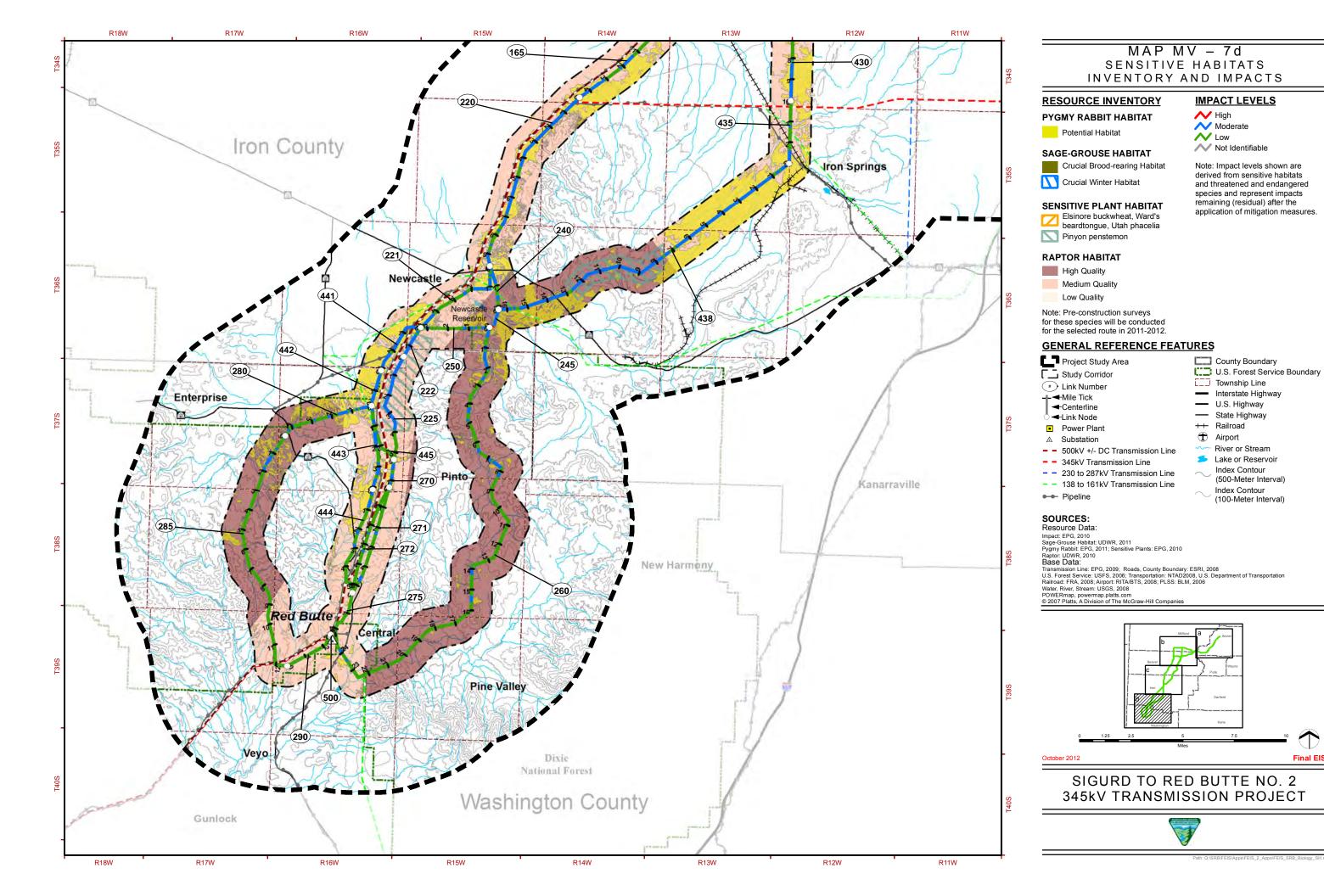


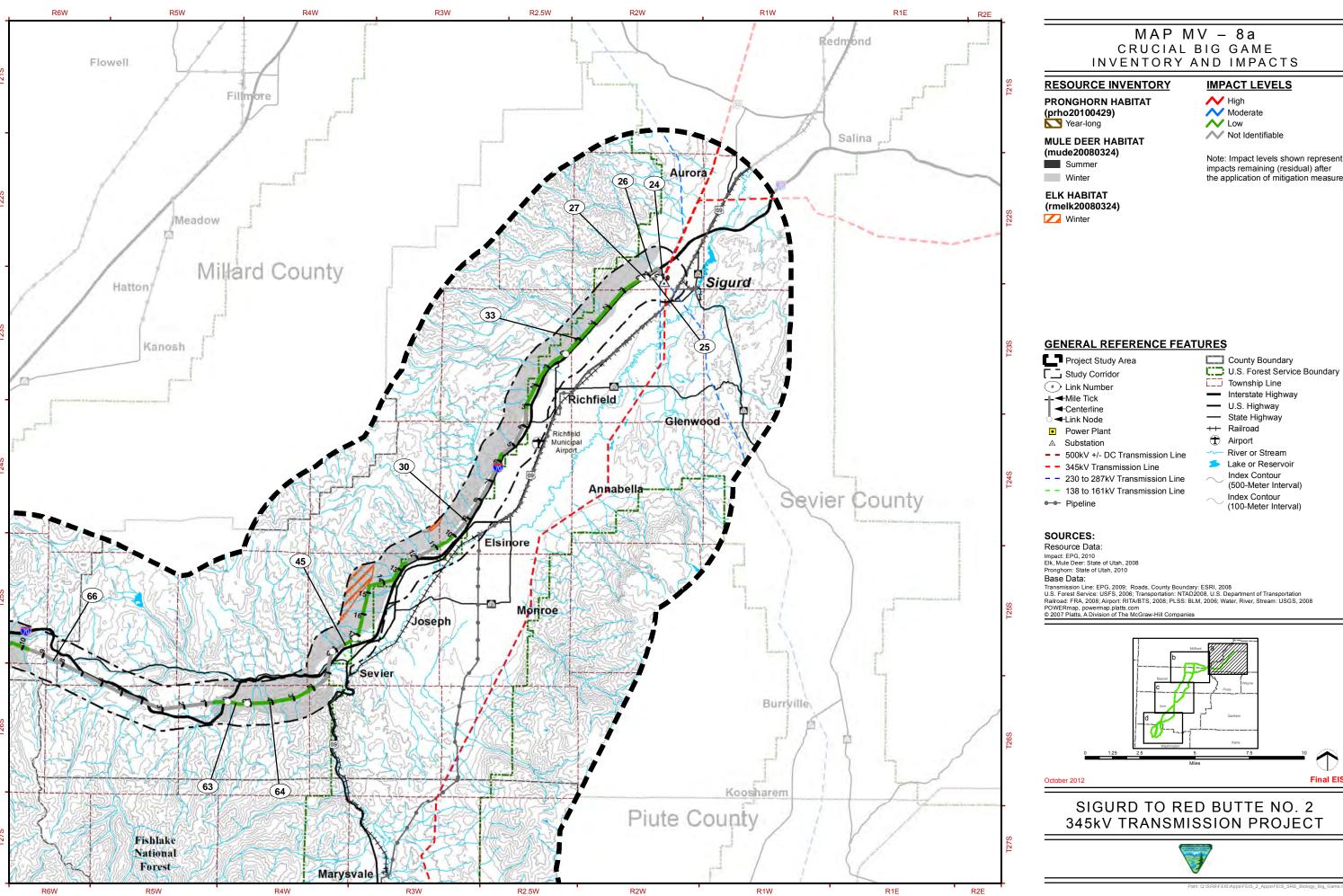


SENSITIVE HABITATS INVENTORY AND IMPACTS

Note: Impact levels shown are derived from sensitive habitats and threatened and endangered species and represent impacts remaining (residual) after the application of mitigation measures.



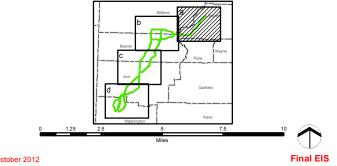




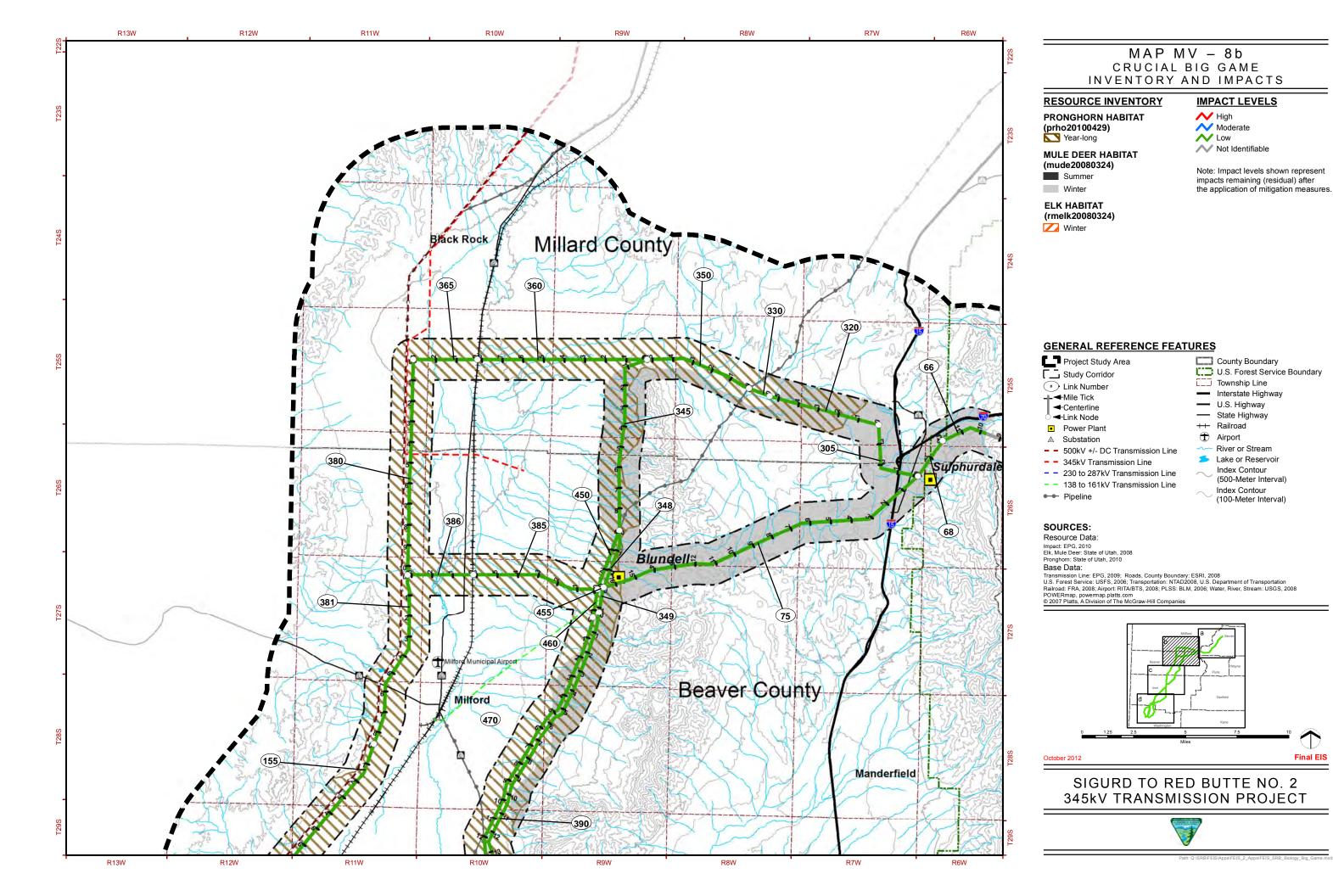
CRUCIAL BIG GAME

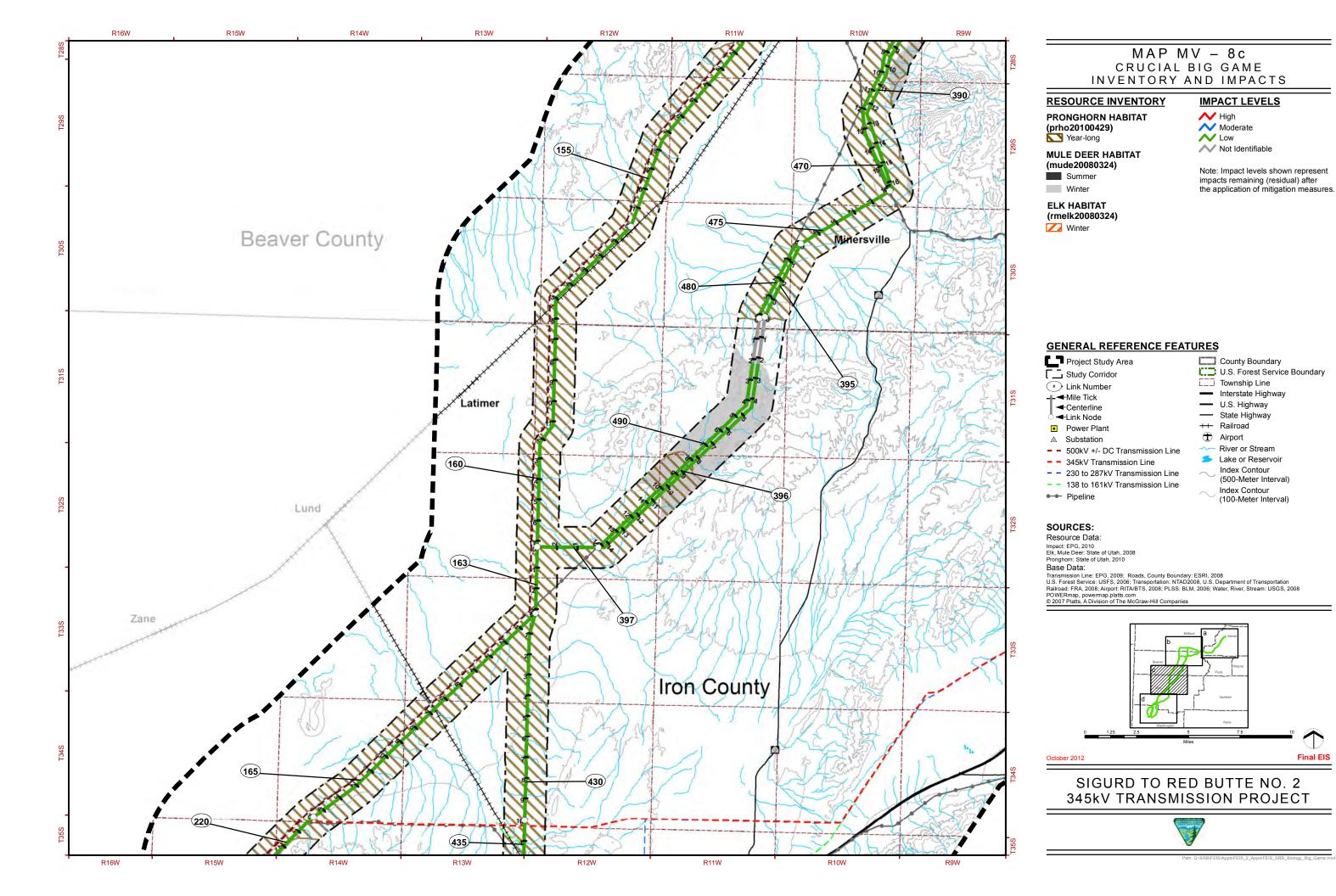
IMPACT LEVELS

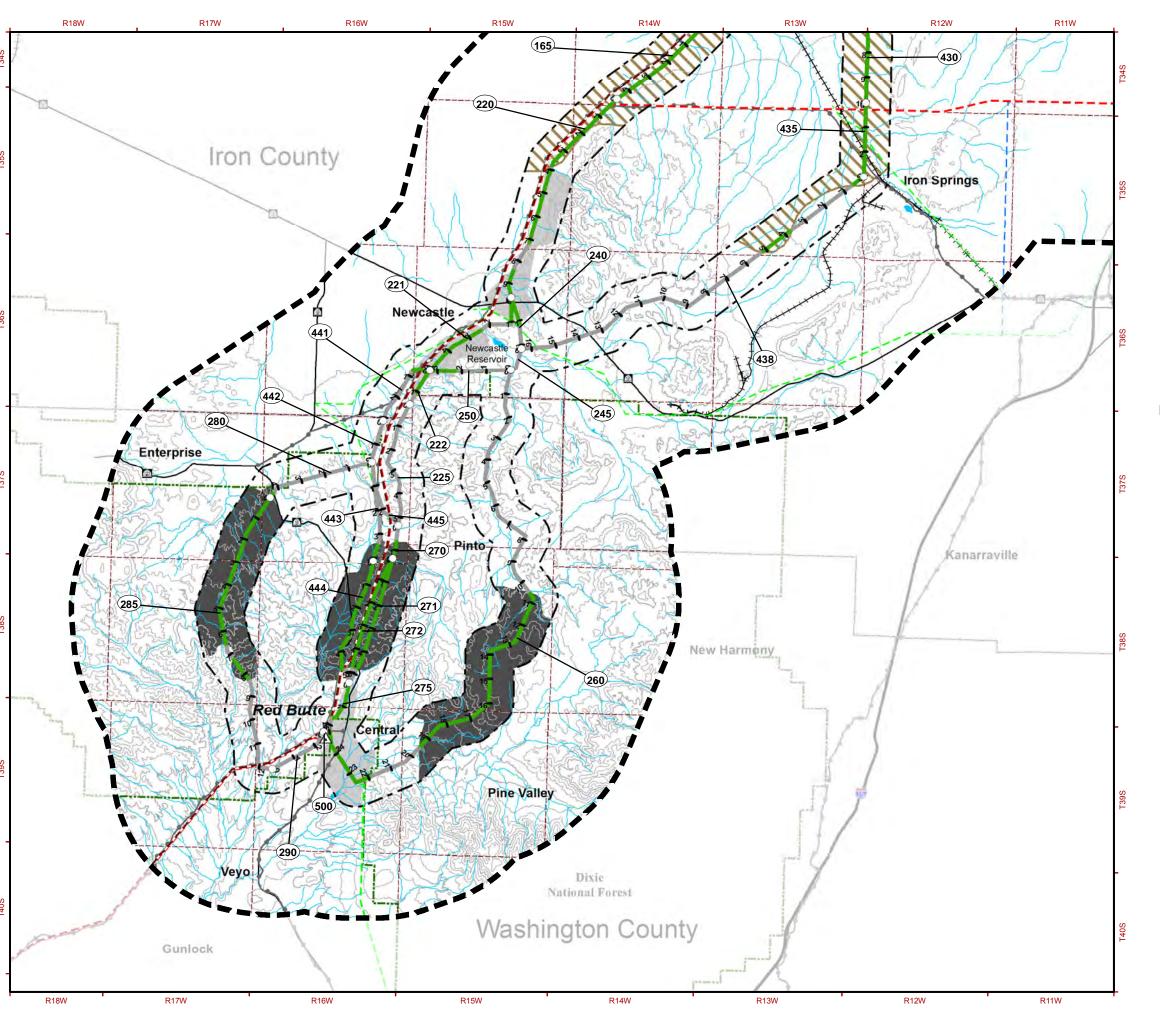
Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.



345kV TRANSMISSION PROJECT







MAP MV - 8d CRUCIAL BIG GAME INVENTORY AND IMPACTS

RESOURCE INVENTORY IMPACT LEVELS

PRONGHORN HABITAT (prho20100429)
Year-long

MULE DEER HABITAT (mude20080324)

Summer Winter

ELK HABITAT (rmelk20080324)

Winter

/ High ✓ Moderate

✓ Low

✓ Not Identifiable

Note: Impact levels shown represent impacts remaining (residual) after the application of mitigation measures.

GENERAL REFERENCE FEATURES

Project Study Area

Study Corridor

Link Number ←Centerline

Link Node

Power Plant ∆ Substation

- 500kV +/- DC Transmission Line

- - 345kV Transmission Line

- - 230 to 287kV Transmission Line

- - 138 to 161kV Transmission Line

--- Pipeline

County Boundary
U.S. Forest Service Boundary

Township Line Interstate Highway

U.S. Highway

- State Highway

++ Railroad Airport

River or Stream

Lake or Reservoir

Index Contour (500-Meter Interval)

Index Contour

(100-Meter Interval)

SOURCES:

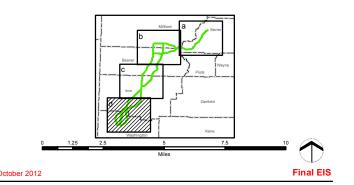
Resource Data:

Impact: EPG, 2010 Elk, Mule Deer: State of Utah, 2008 Pronghorn: State of Utah, 2010

Base Data:

U.S. Forest Service: USFS, 2006; Transportation: NTAD2008, U.S. Department of Transportation
Railroad: FRA, 2008; Airport: RITA/BTS, 2008; PLSS: BLM, 2006; Water, River, Stream: USGS, 2008

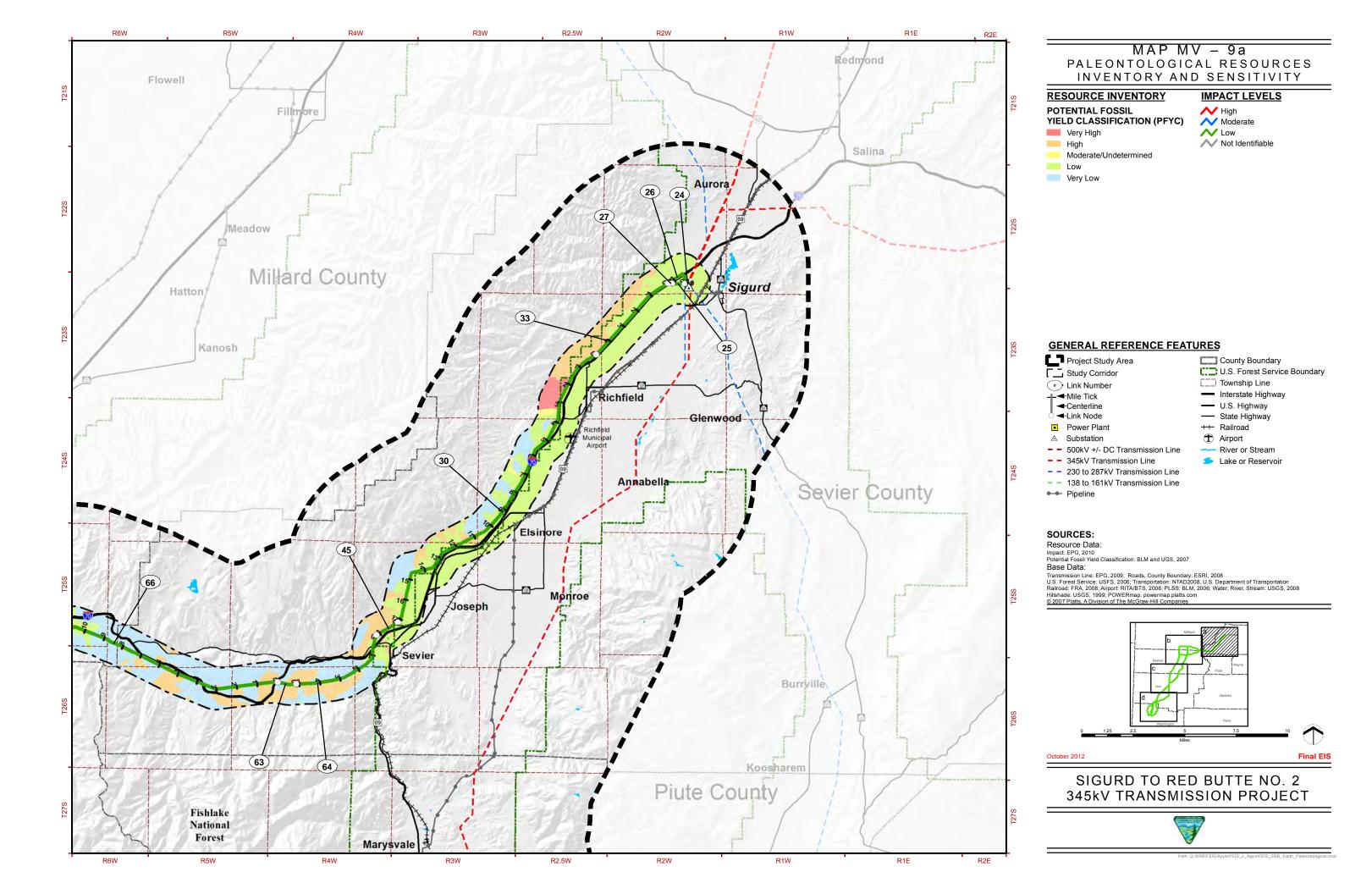
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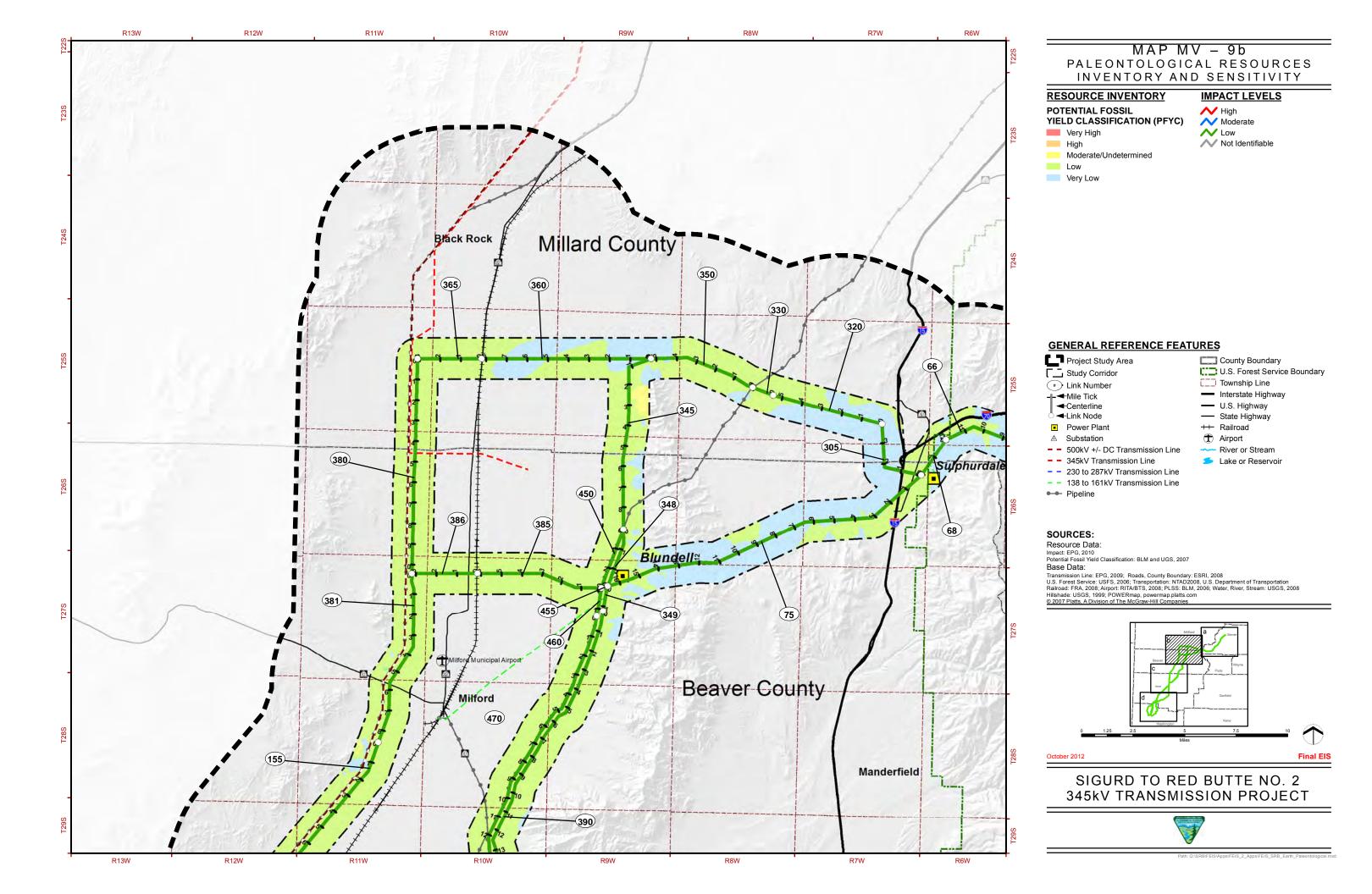


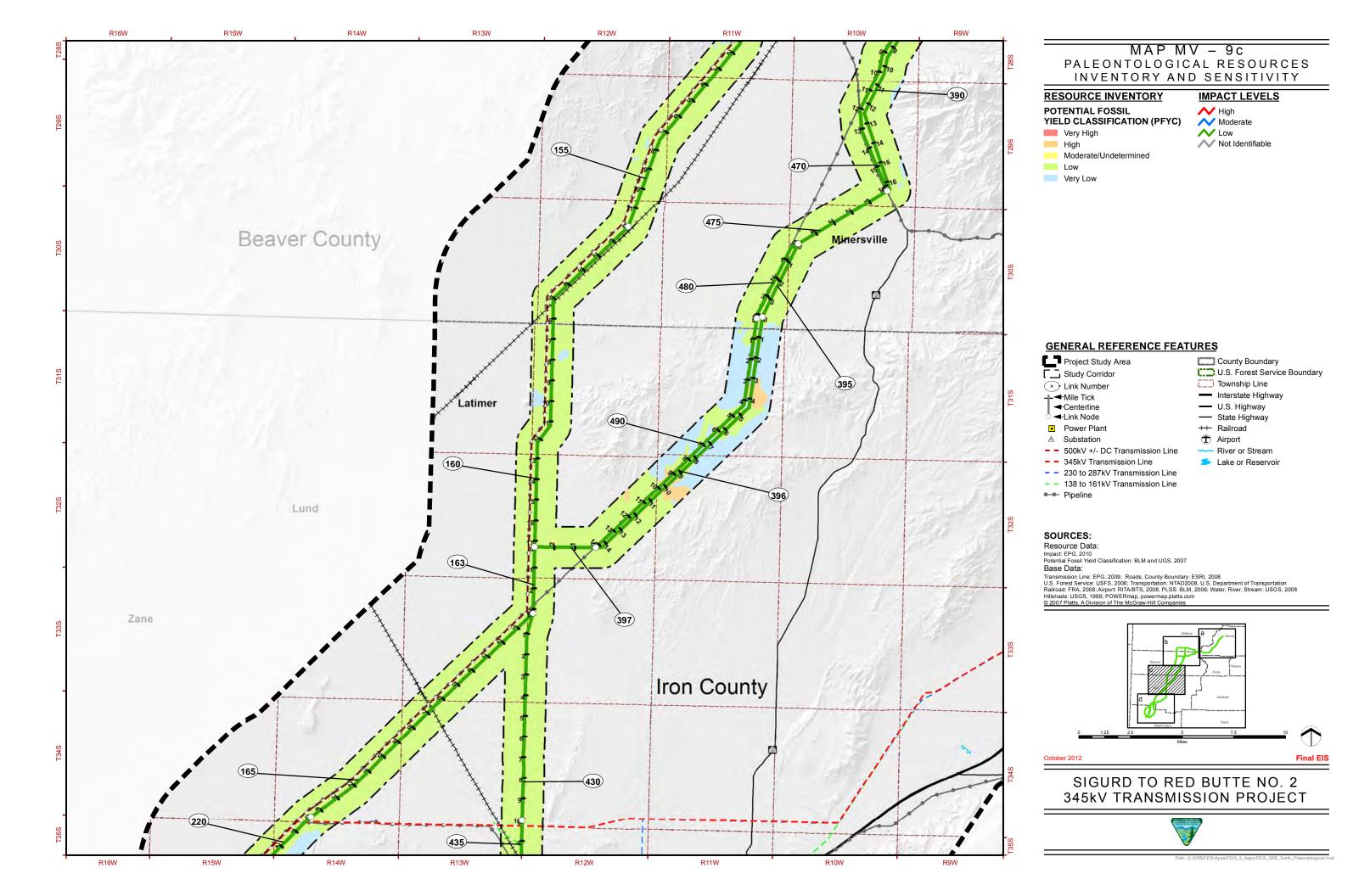
SIGURD TO RED BUTTE NO. 2 345kV TRANSMISSION PROJECT

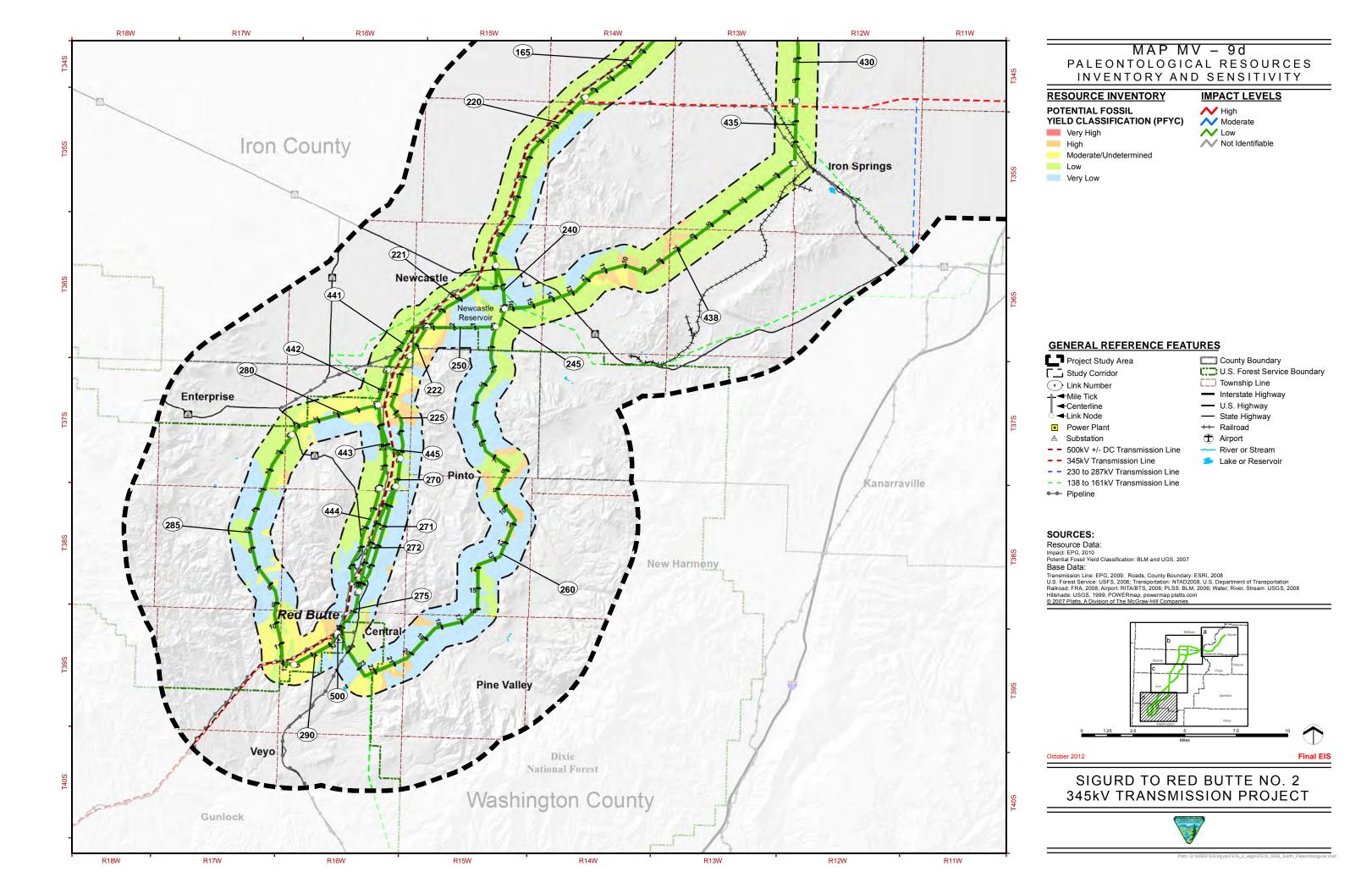




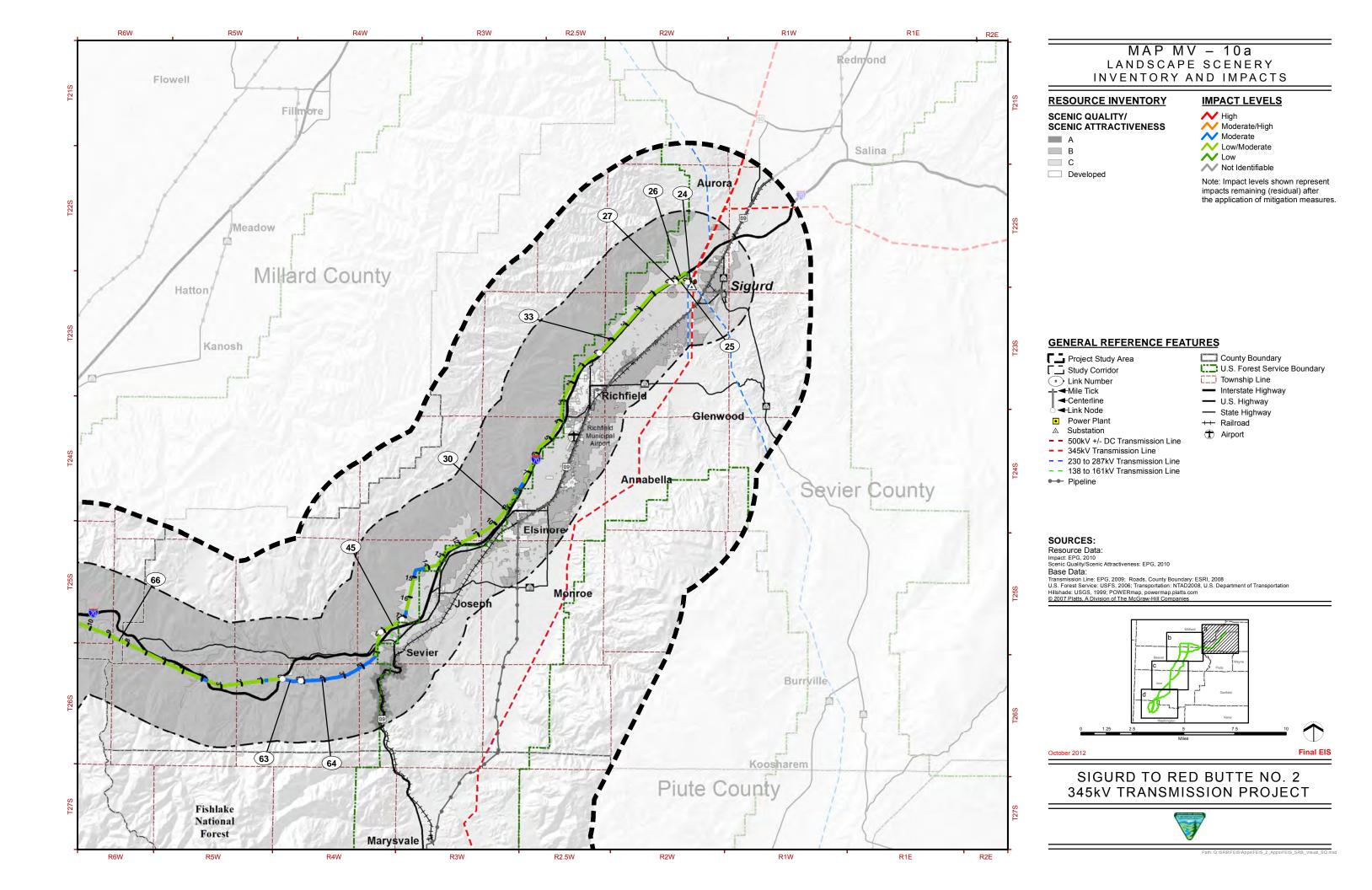


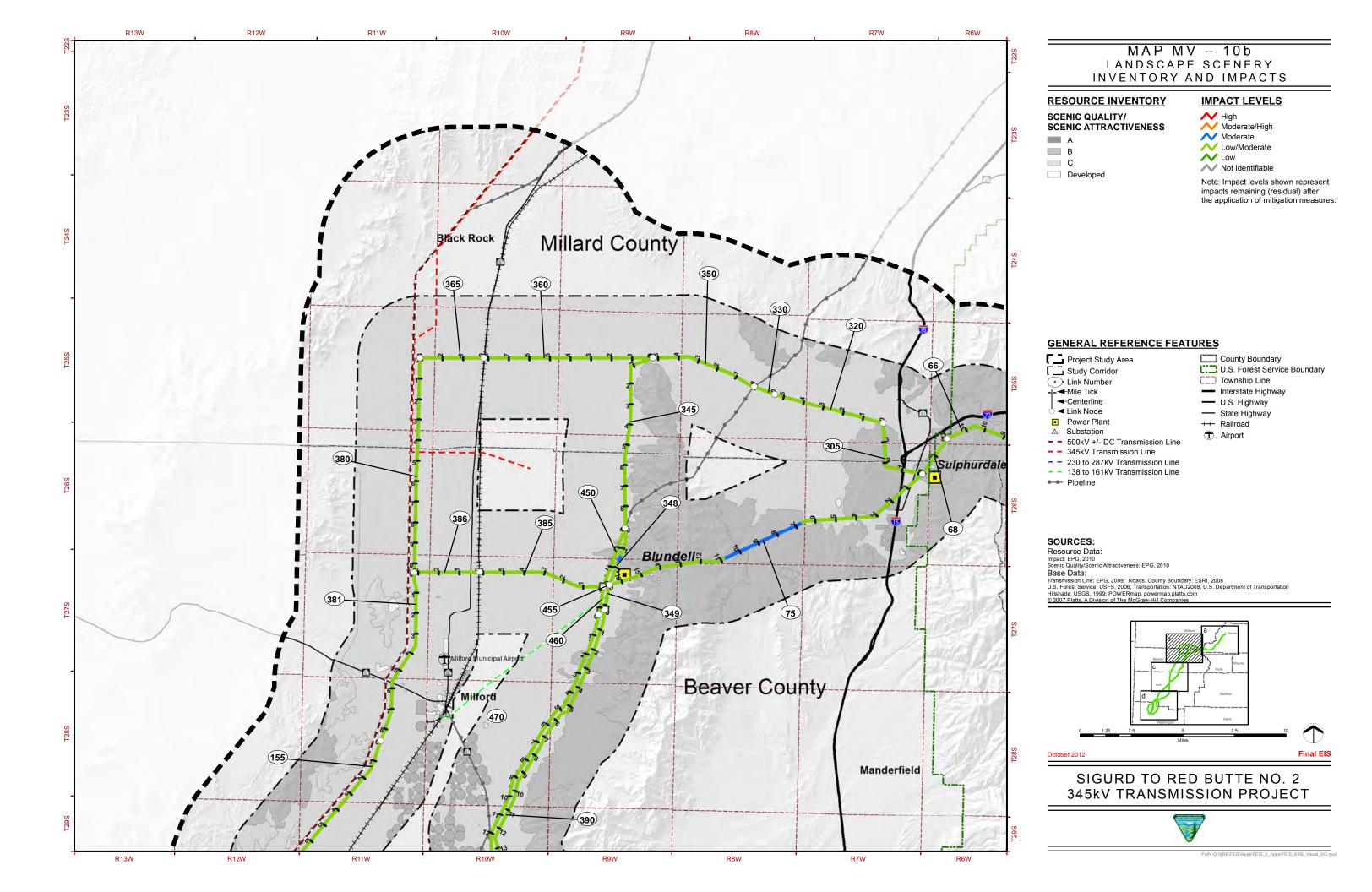


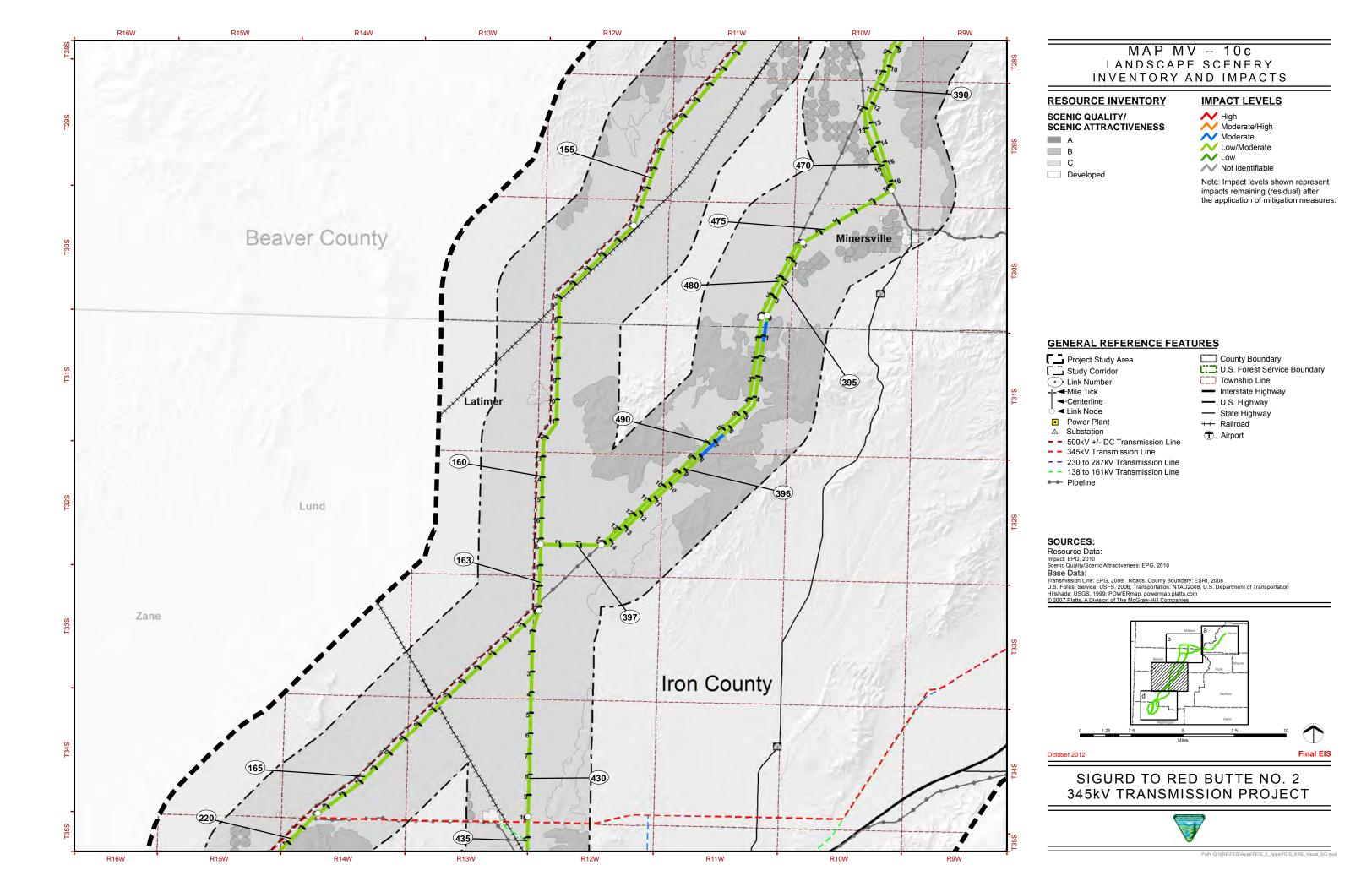


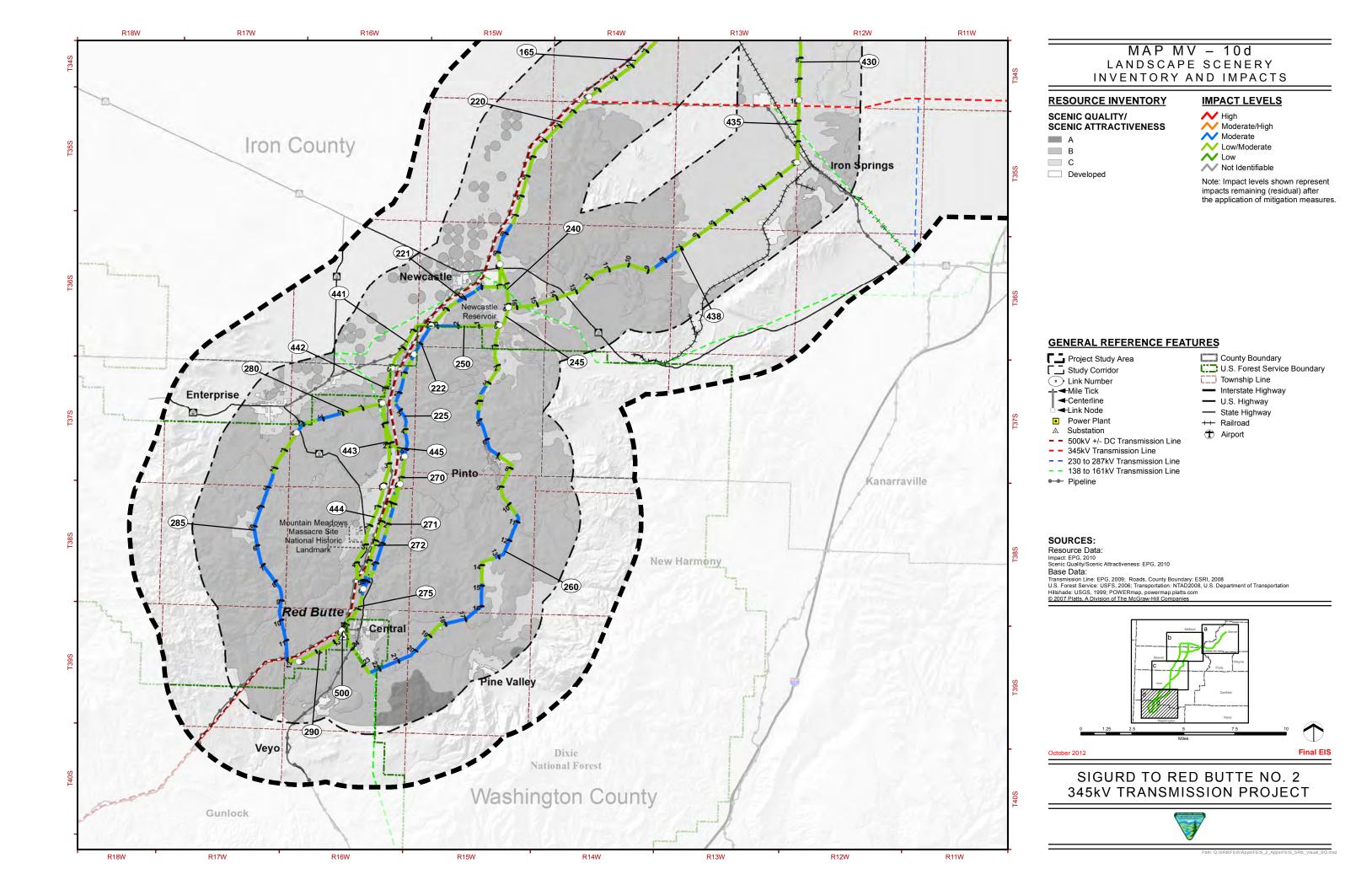


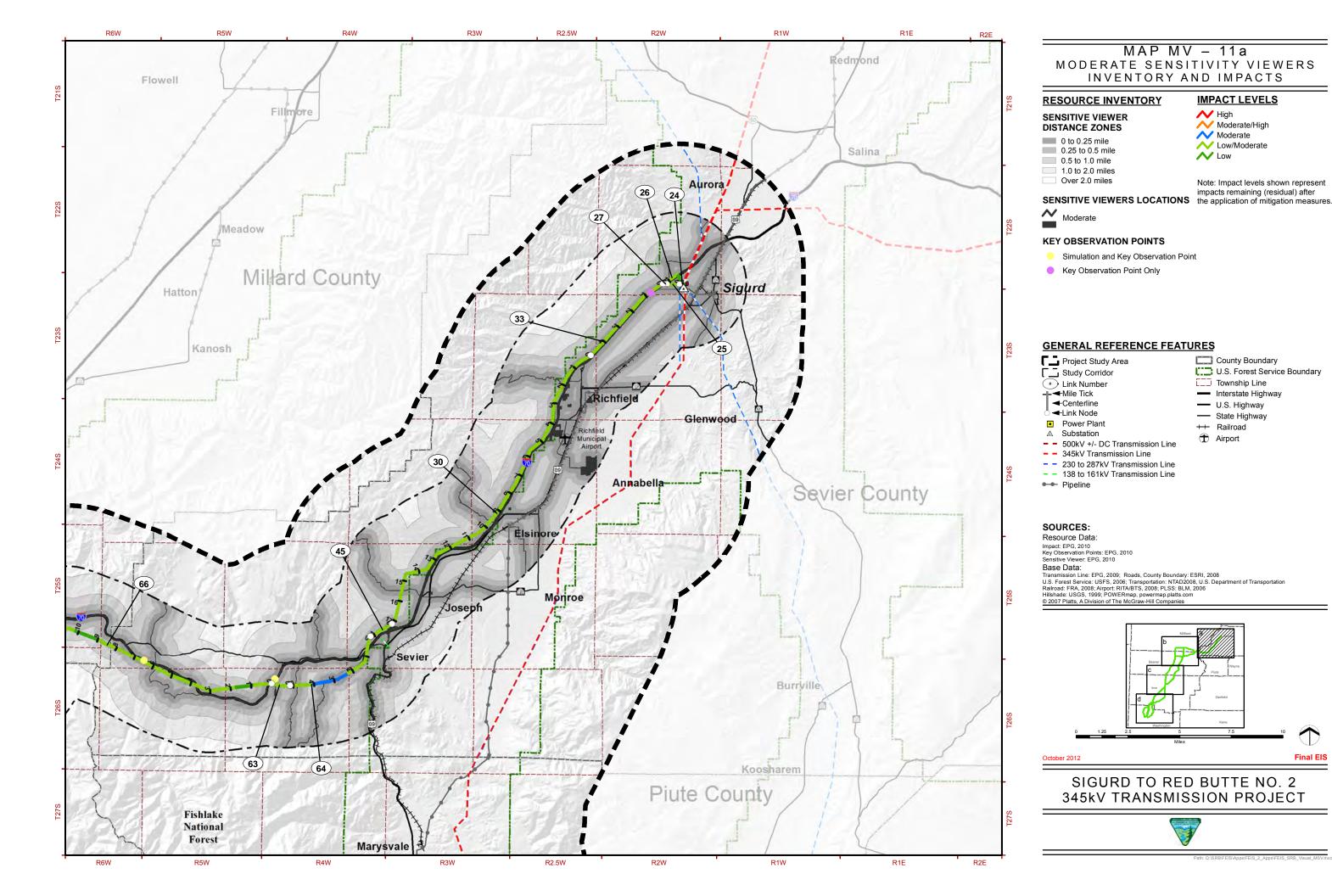


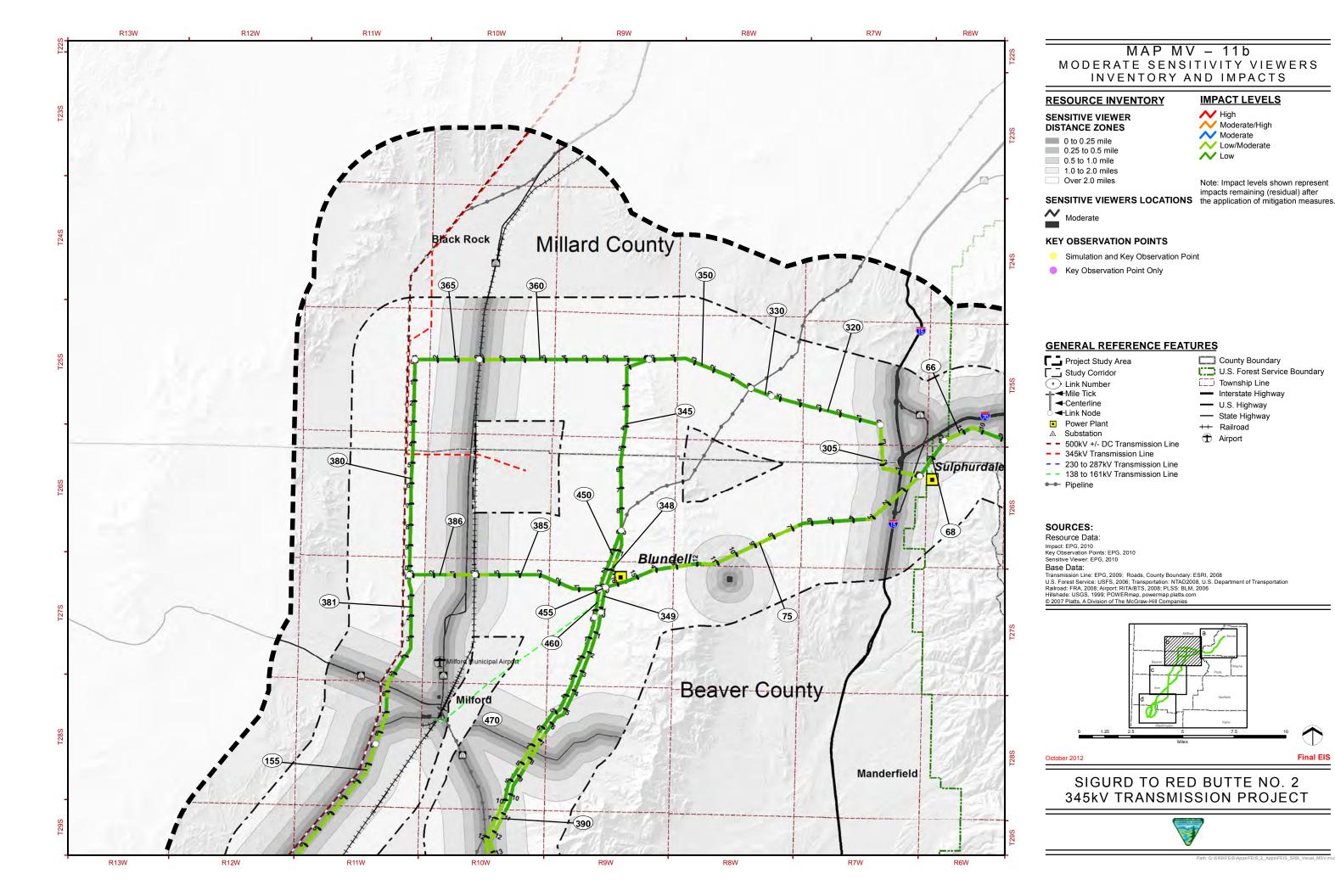


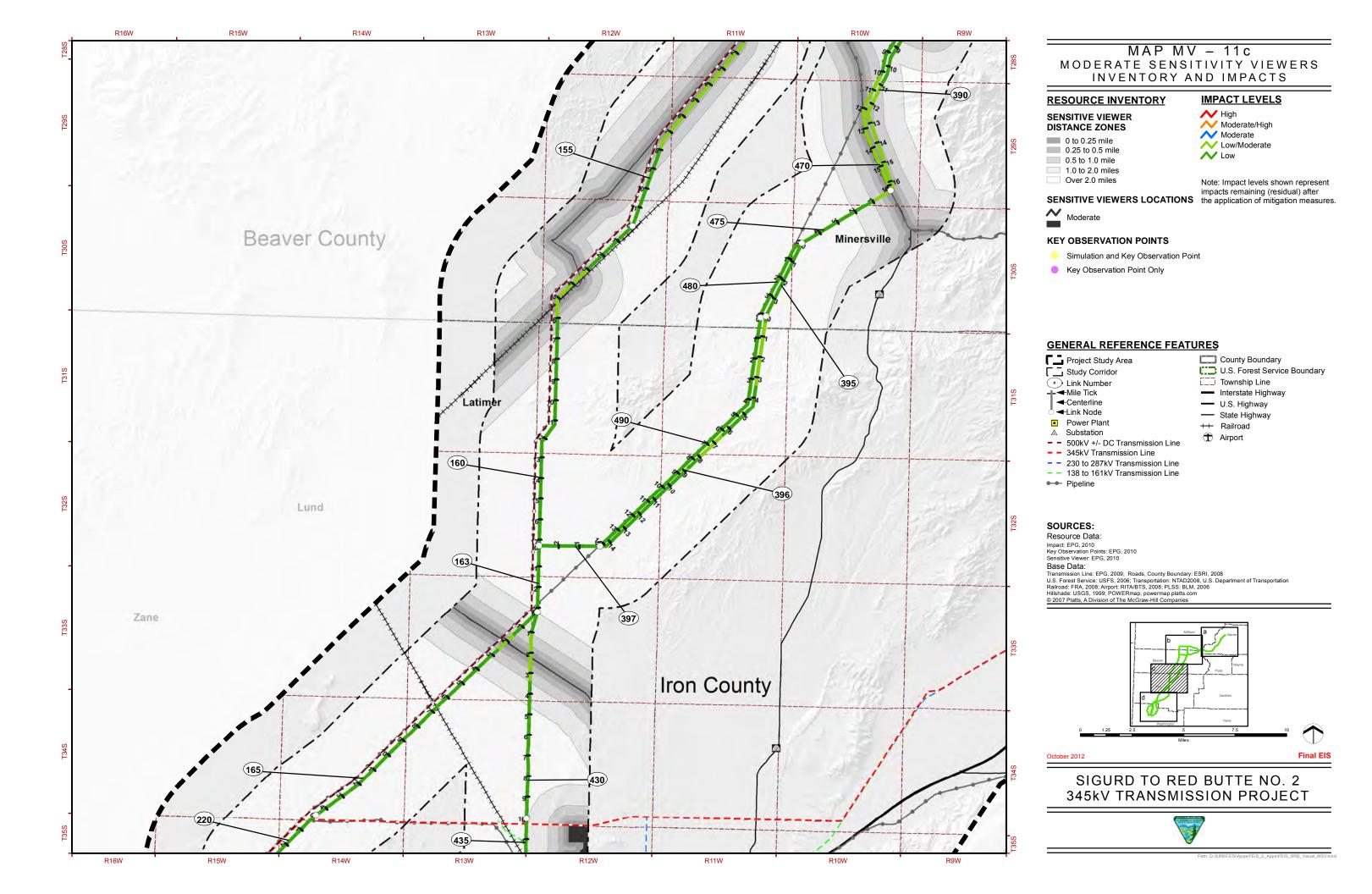


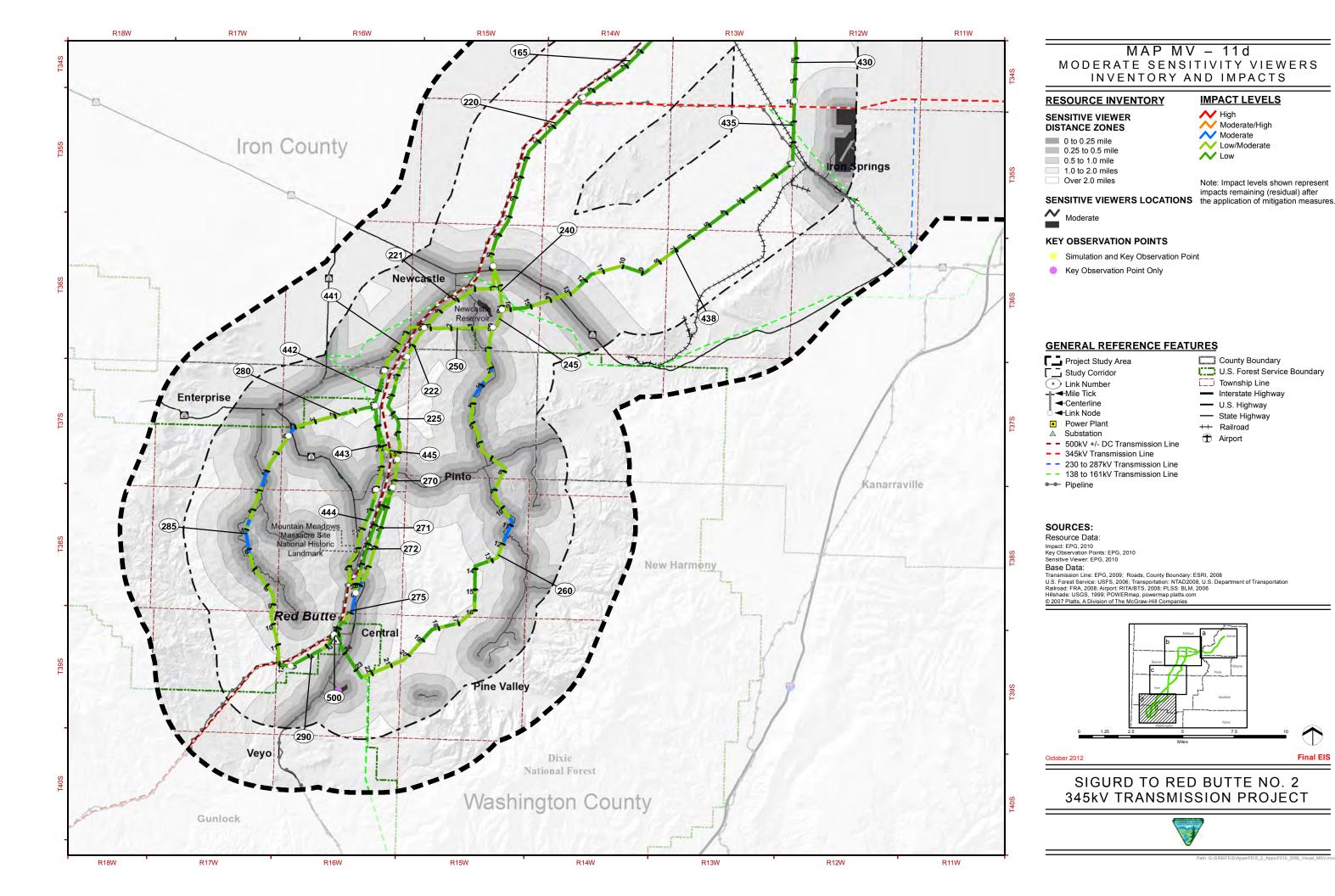


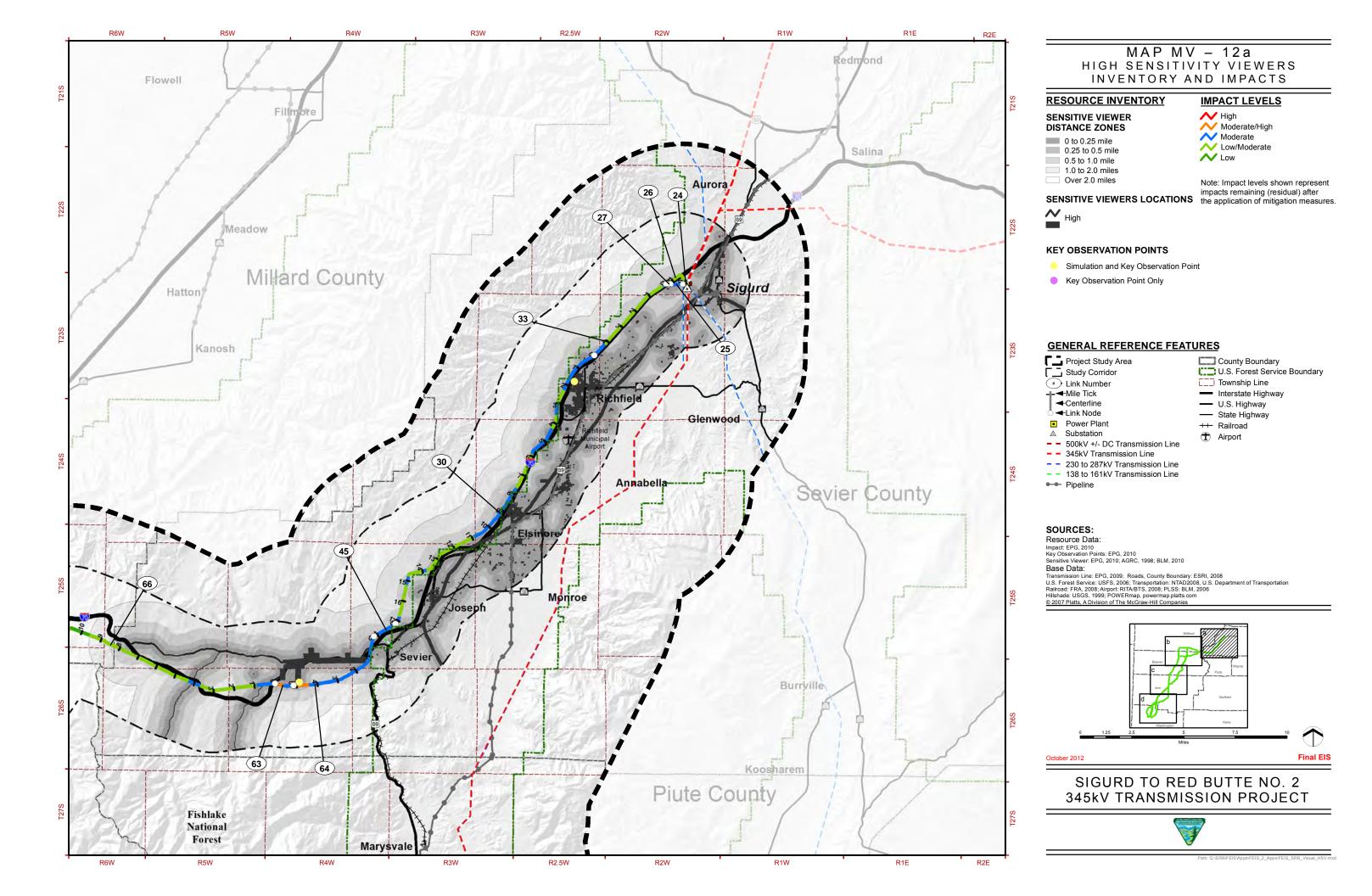


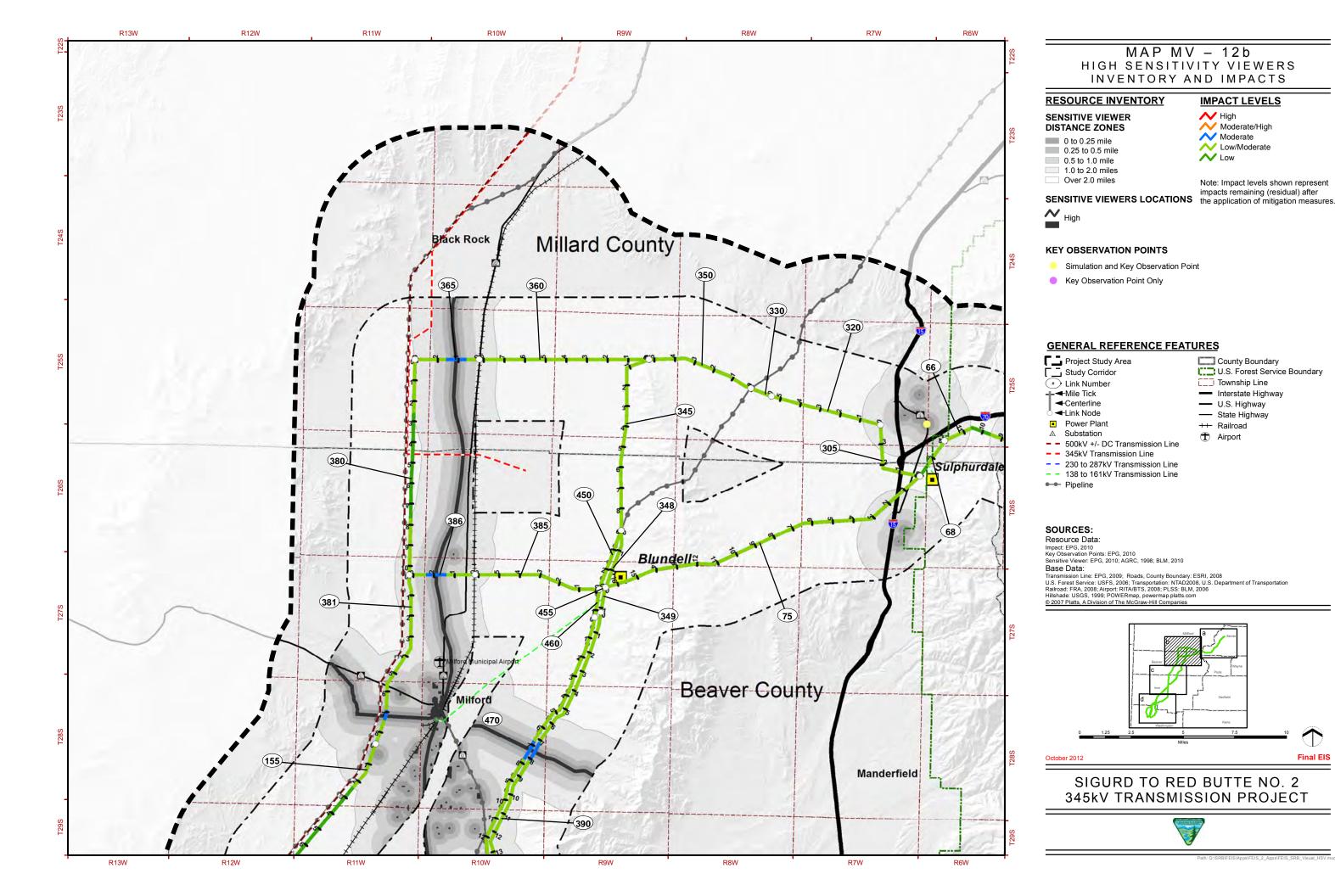


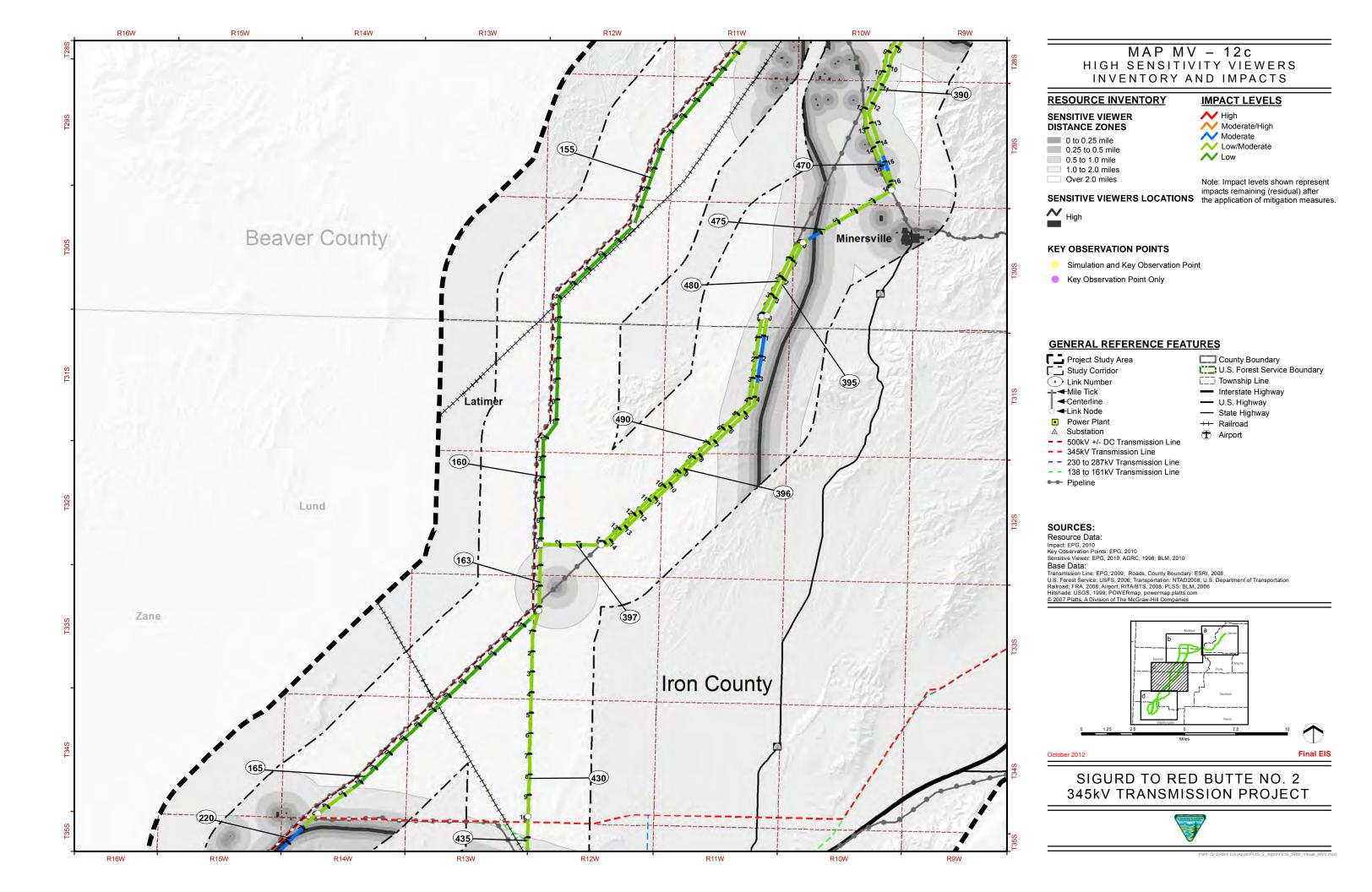


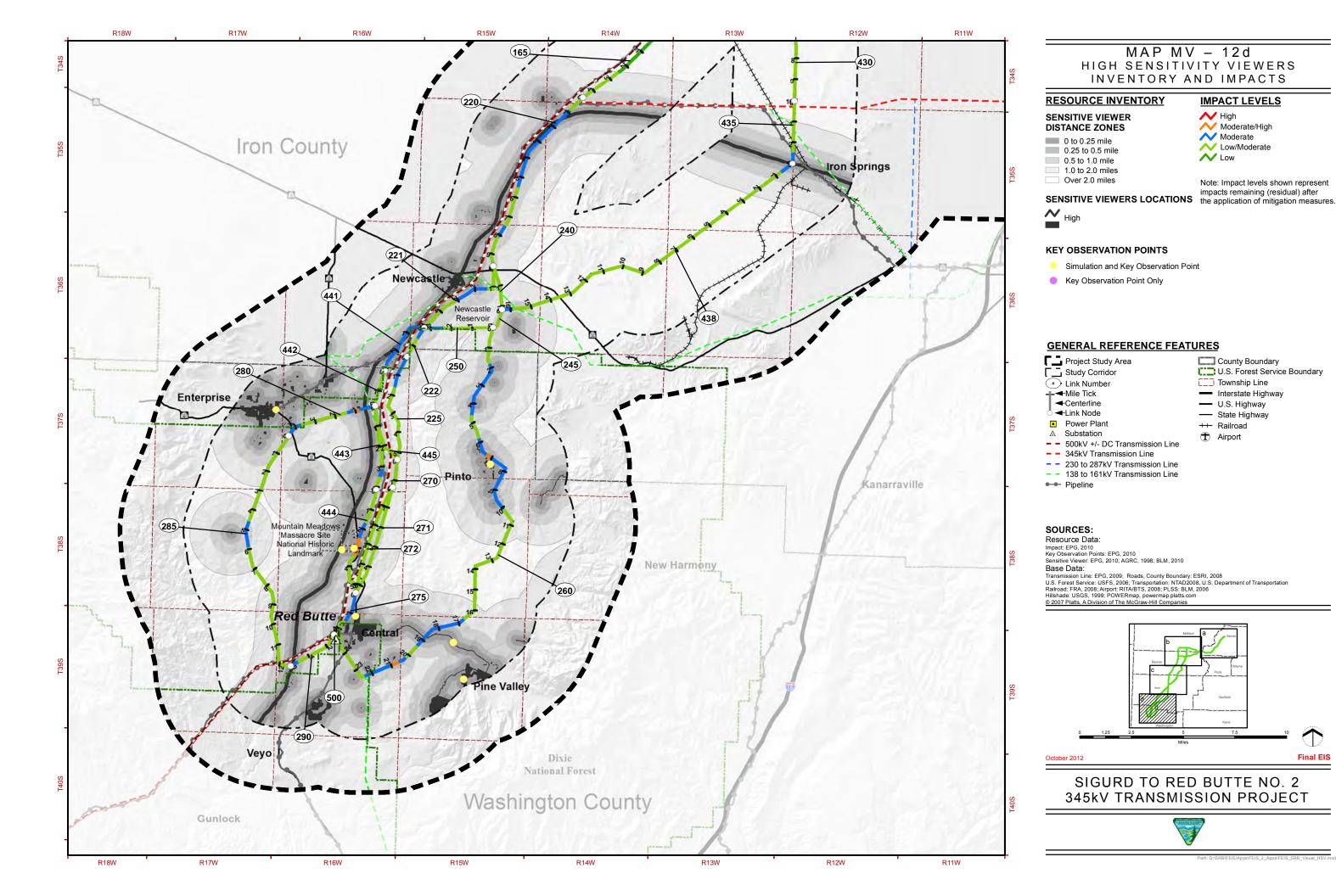


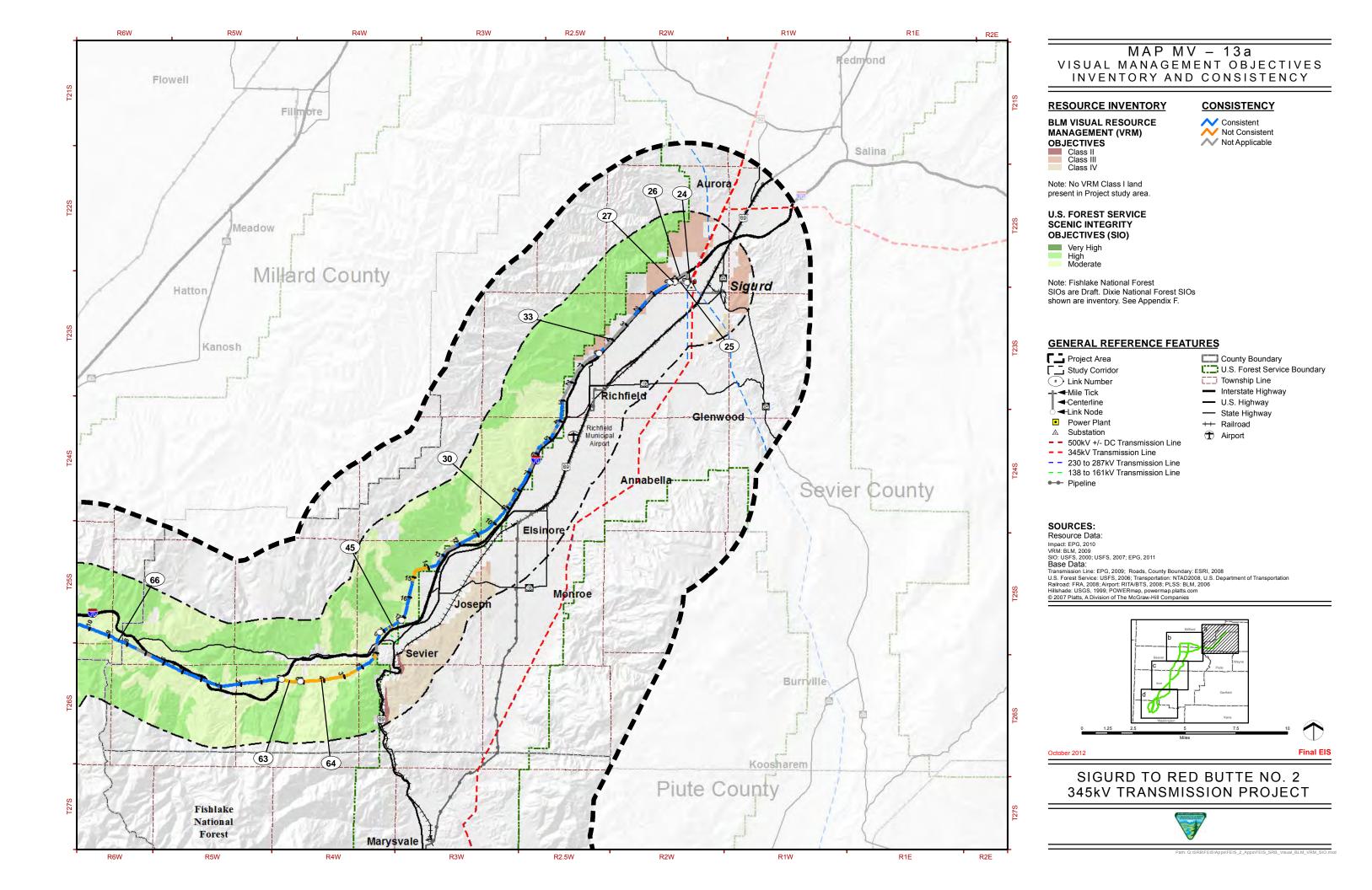


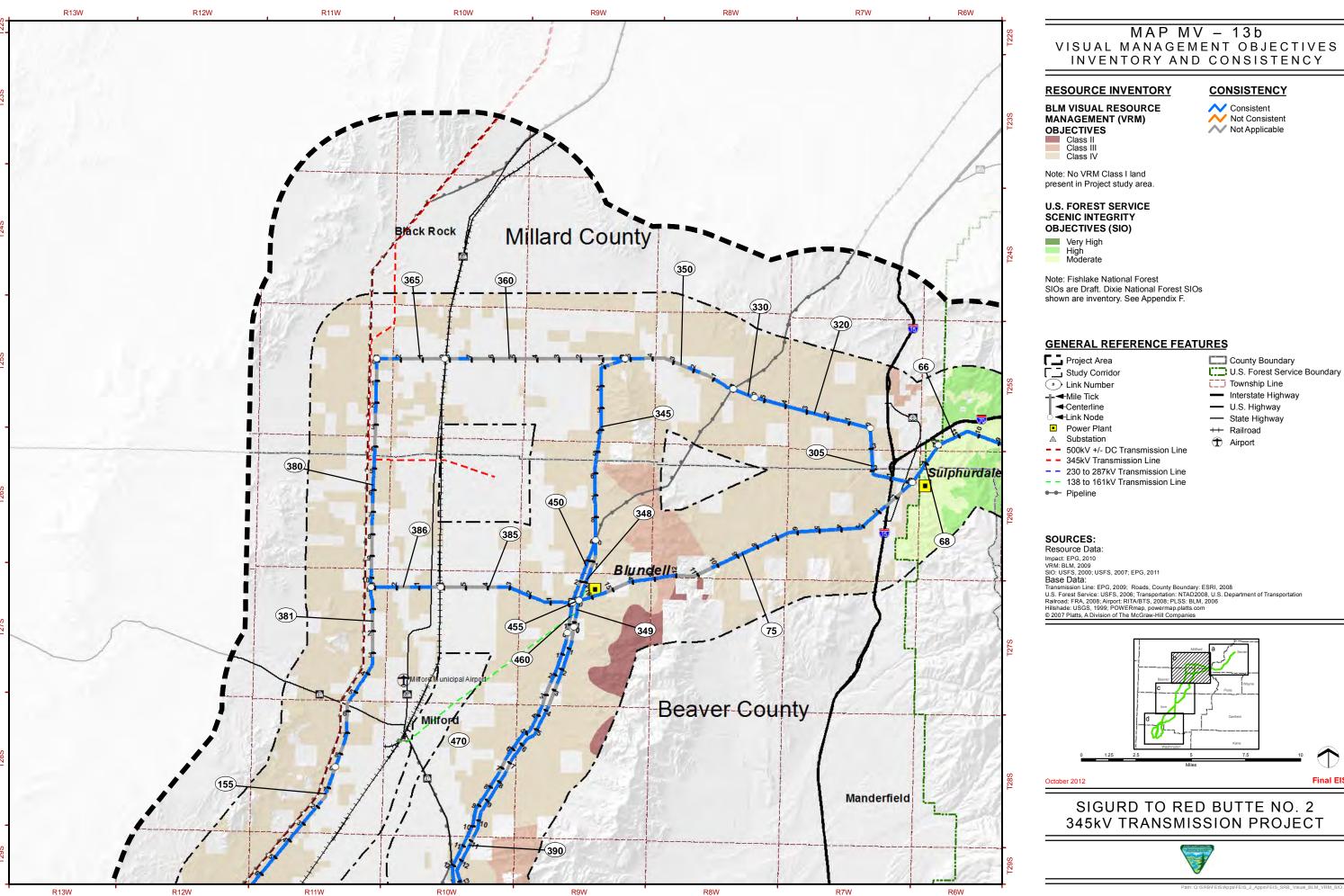




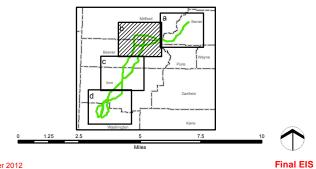




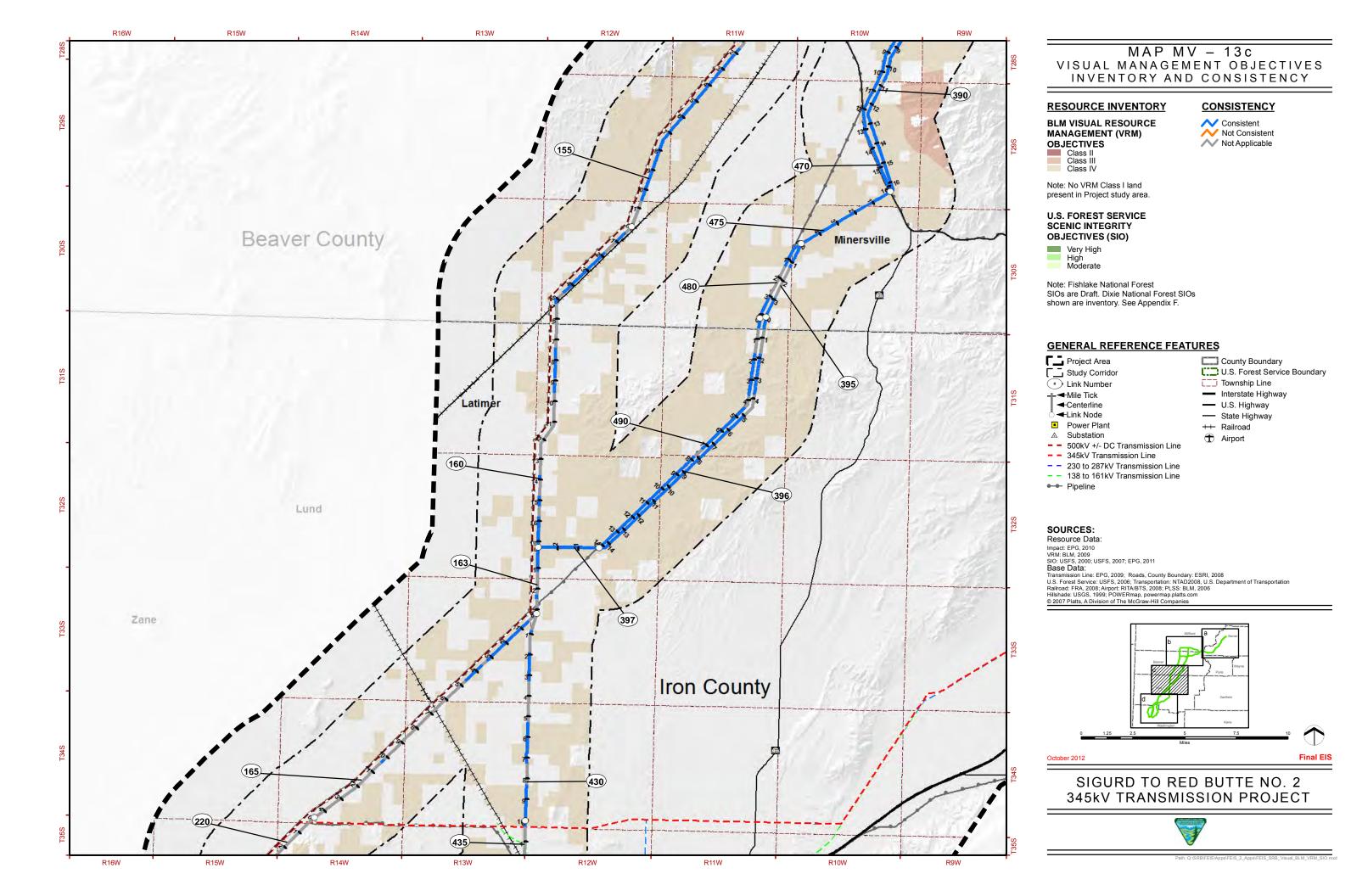


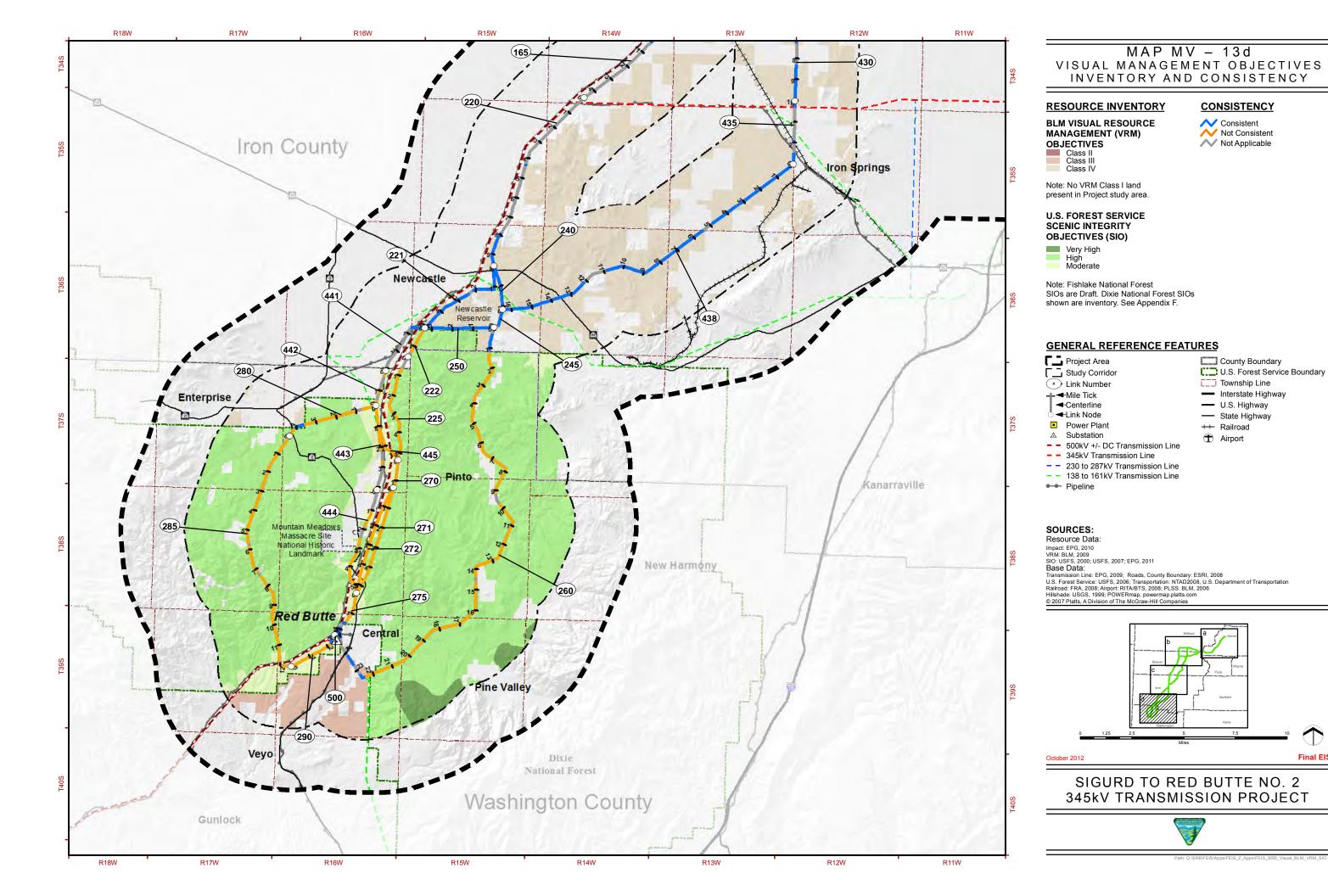


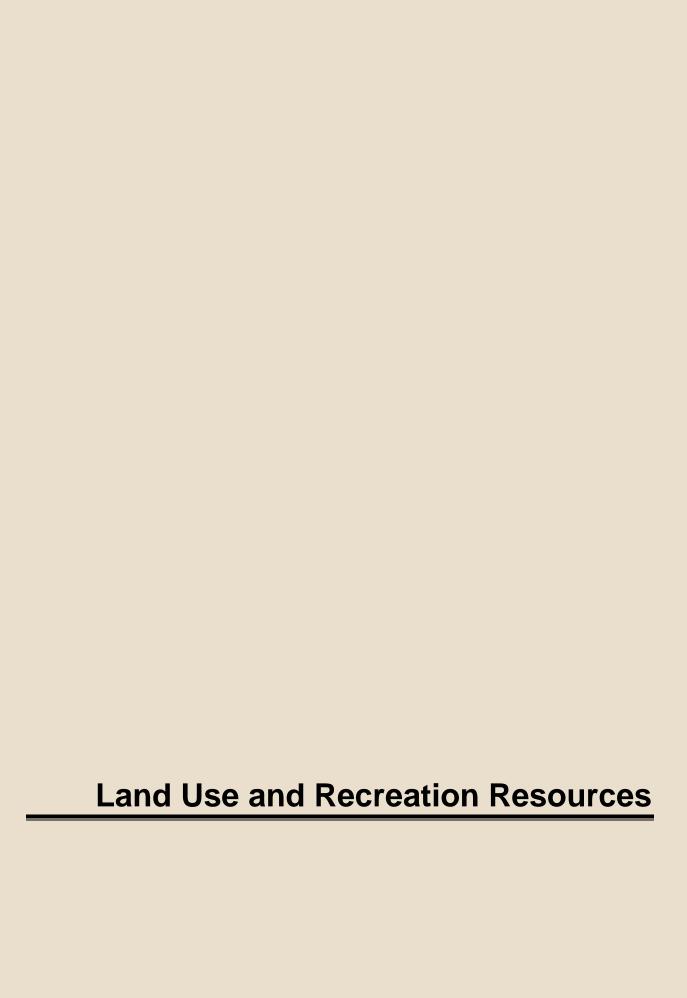
VISUAL MANAGEMENT OBJECTIVES INVENTORY AND CONSISTENCY

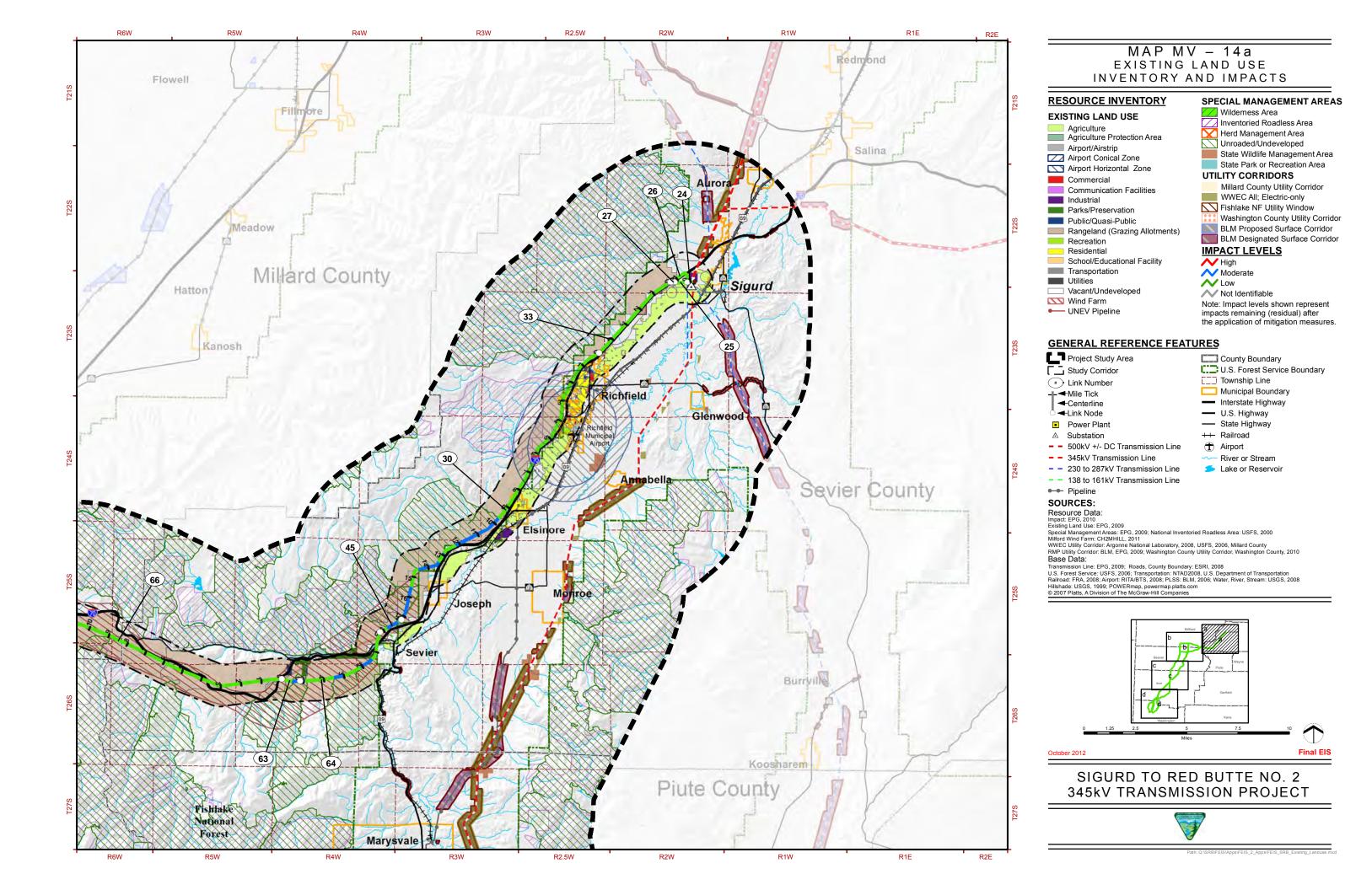


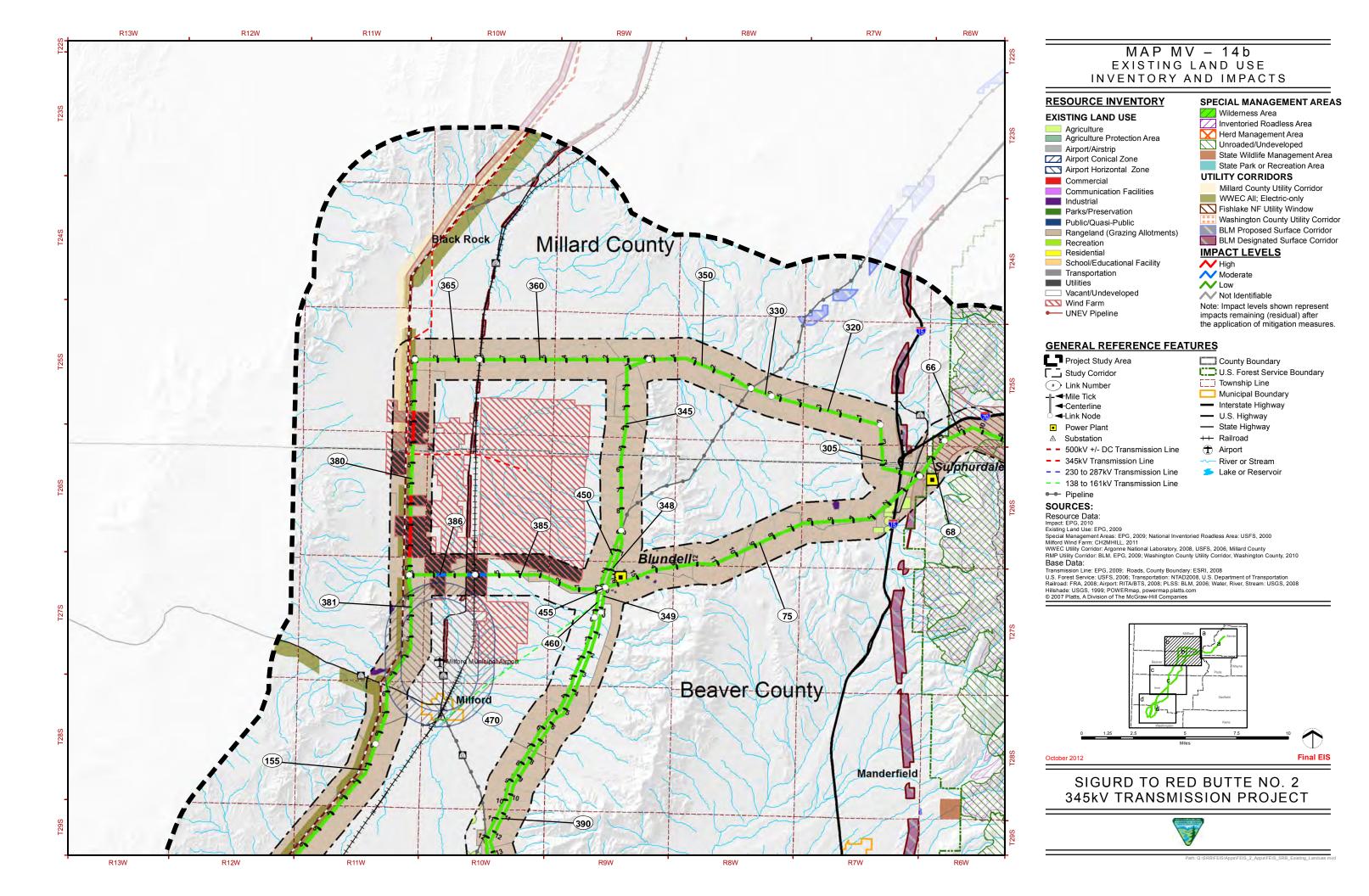
SIGURD TO RED BUTTE NO. 2

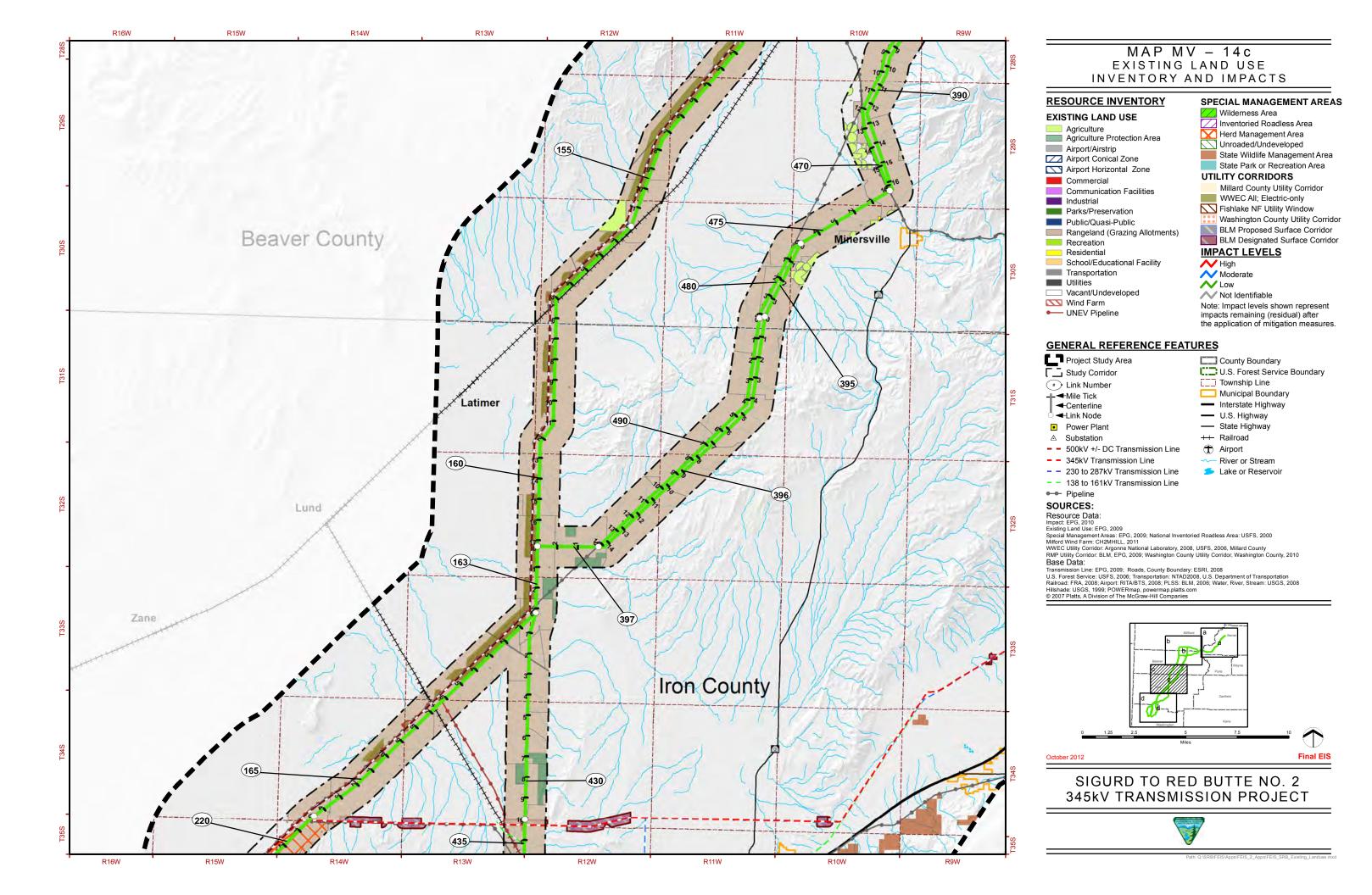


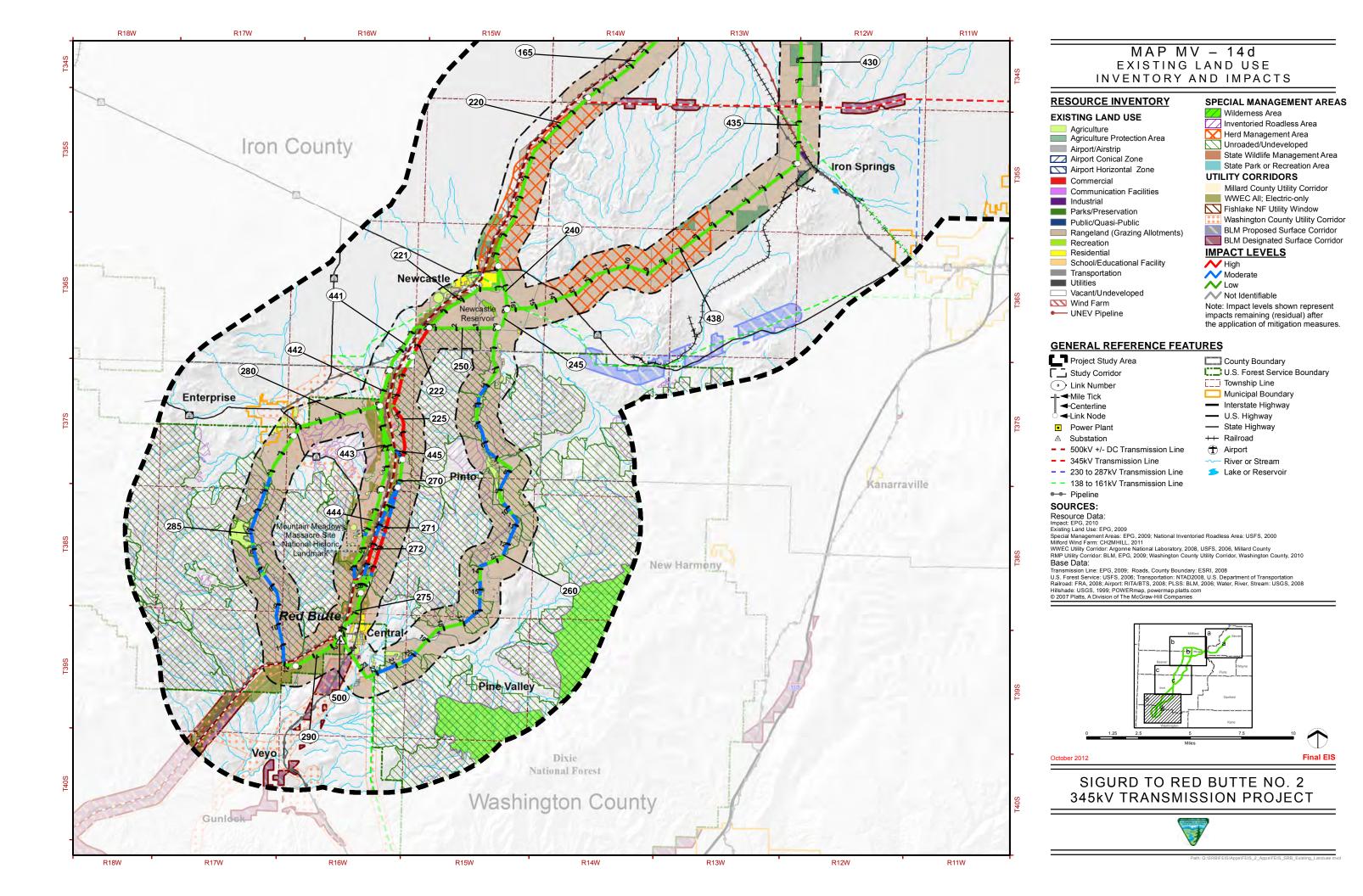


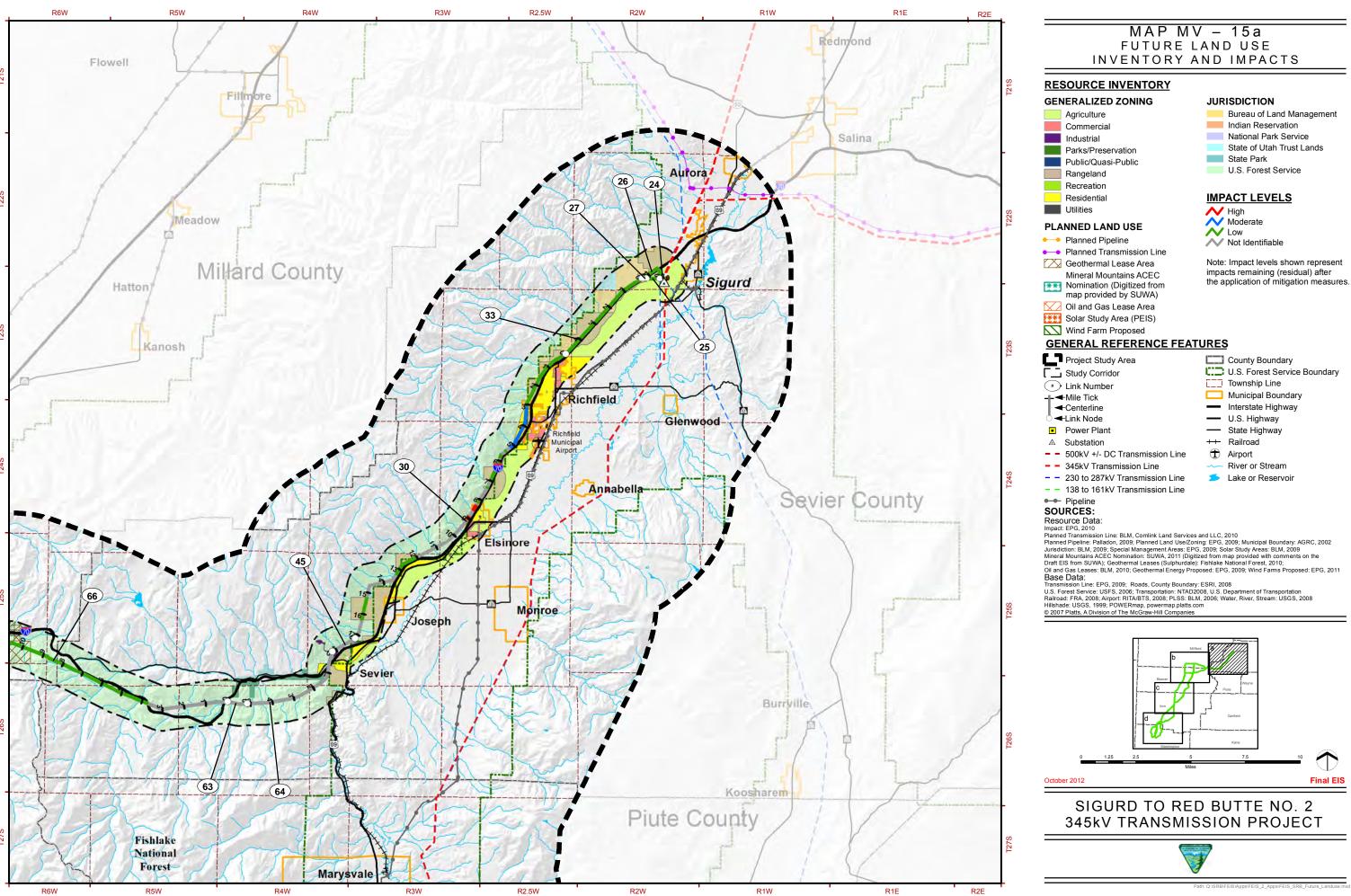




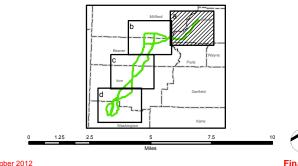




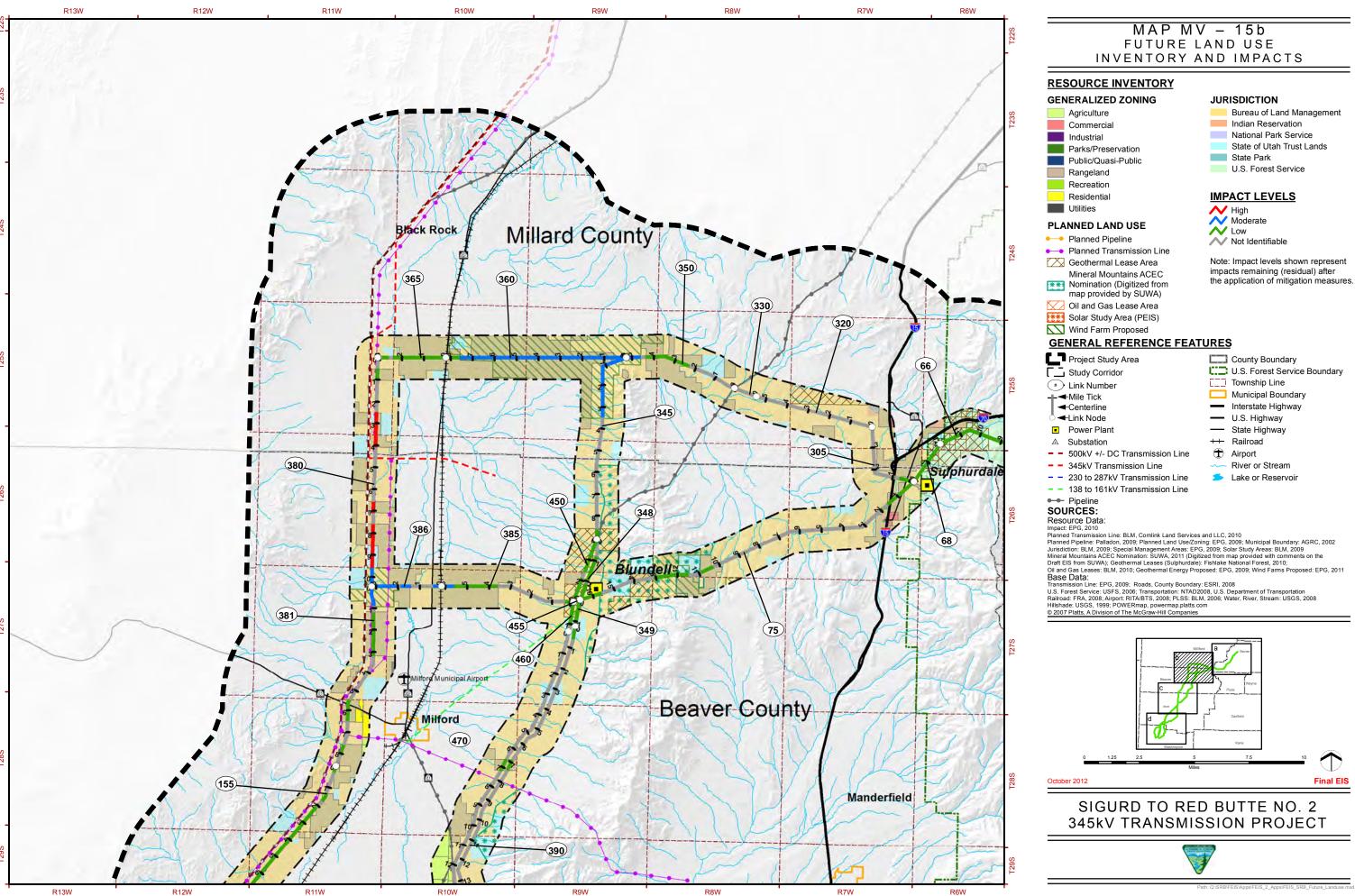




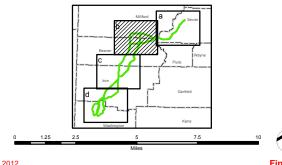
MAP MV - 15a FUTURE LAND USE INVENTORY AND IMPACTS



SIGURD TO RED BUTTE NO. 2 345kV TRANSMISSION PROJECT



FUTURE LAND USE



SIGURD TO RED BUTTE NO. 2

